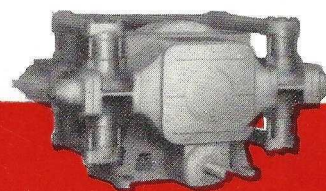


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*Why growers have found that
their Most Dependable Sprayer
is the*

"FRIEND"

Better Performance of the "Friend"

Why you have heard so many owners of sprayers say:
"Our 'Friend' is far more Reliable."

Here you have a clear explanation of the mechanical reasons back of the "Friend" Sprayer's unequalled dependability.

Thousands of growers who have used different makes of sprayers side by side — on exactly the same work — have reported that the "Friend" gives the steadiest high pressure, with fewer repairs and lower cost for upkeep.

This better performance of the "Friend" is so widespread, so consistent, that it can only be due to the definitely superior design of the "Friend" pump.

Now you can watch a "Friend" engineer put together one of these pumps — while he tells you the reasons for the unique "Friend" design.

Growers who have used several different makes of sprayers wrote the letters from which we are quoting here. Our files contain thousands more letters from "Friend" owners, as enthusiastic as these.

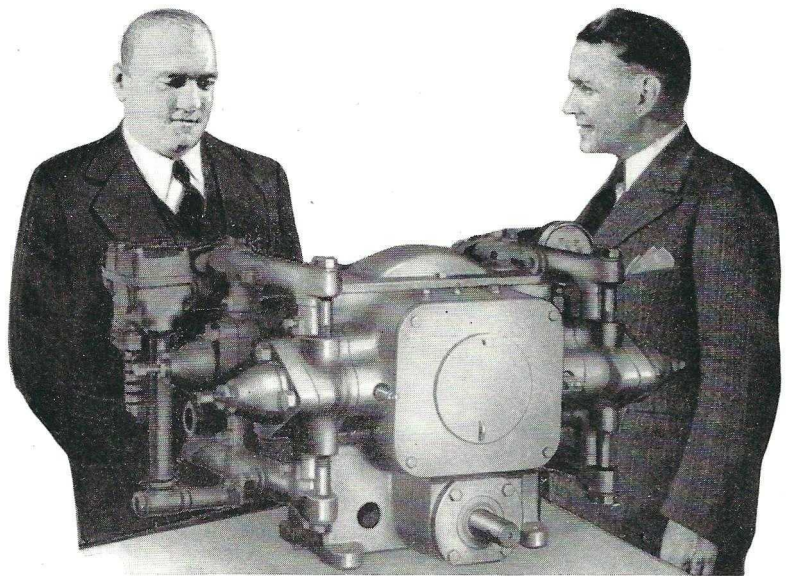
"The 'Friend' Sprayer is remarkable. One AXB 'Friend' that I bought 10 years ago has run almost constantly 4 months each season, and is as good now as when bought. With the 'Friend' we have no such difficulty in maintaining high pressure that we've had with other sprayers. The 'Friend' is much more dependable, and upkeep cost is lower."
—M. C. Hinshaw, Coldwell, Idaho.

"Performance of the 'Friend' Sprayer is the best I've seen, far superior to that of our other outfit. The 'Friend' stands up well and is easily overhauled." — Carl Troxel, Maxmeadows, Va.

"After 4 years of spraying 30 acres of apples and pears, I am repacking my 'Friend' for the first time. Expense for repair parts—nothing. My previous sprayer of other make cost me 8 times as much for upkeep." —W. D. Blake, Parkdale, Oregon.

"Our 'Friend' Sprayer has given us top results, doing excellent work with no trouble whatever. It maintains pressure very much better than other sprayers, is much more dependable, and the cost is lower per gallon of delivered spray." —Nels. J. Johnson, Evanston, Ill.

"Here's a 'Friend' pump that's all assembled —



Let's put together another one like it —

"— part by part, and see just what makes it so dependable.

"We'll start with the plungers and cylinders, then look at the method of drive, the valves and the controller."

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

is a direct result of its **Better Design**

"Every sprayer manufacturer uses a pump of the displacement type—but look at the *difference!*"

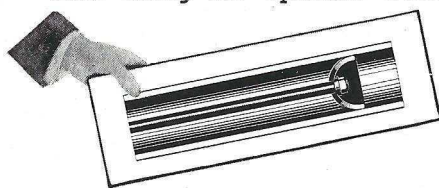
"Did you ever take stock of the job that your sprayer's pump has to do?

"This pump not only has to deliver the gallonage you want to put through your spray guns—but it has to hold the pressure right where you want it, whether the guns are spraying at full capacity or shut off. The pump has to stay on the job and do its work right, every minute.

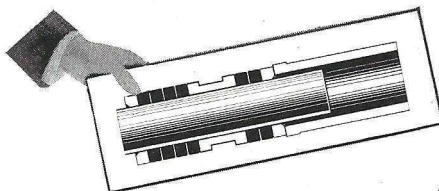
"Since water can not be compressed, the pressure on the spray solution is cushioned by an air chamber connected to the pump's discharge line.

"Every power sprayer pump is of the displacement type—using a plunger of some sort, that pushes the fluid out of a cylinder. Right there the 'Friend' pump is radically different. It has a plunger design that is far superior.

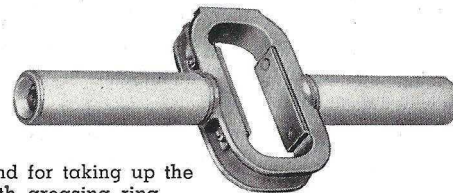
"Surely you have seen the kind of plunger that's used on an ordinary spray pump—a piston with a plunger cup attached to one end. The cup rubs along the cylinder wall and pushes the water out. It works like a hand tire pump. Same principle exactly.



"This isn't such a bad idea for pumping air—but spray solutions are often very abrasive. There's a grinding action on the rubber cups, and on the cylinder walls. As wear occurs, the owner of the pump has to buy new cups for the ends of the pistons, and he also must have the cylinders re-lined.

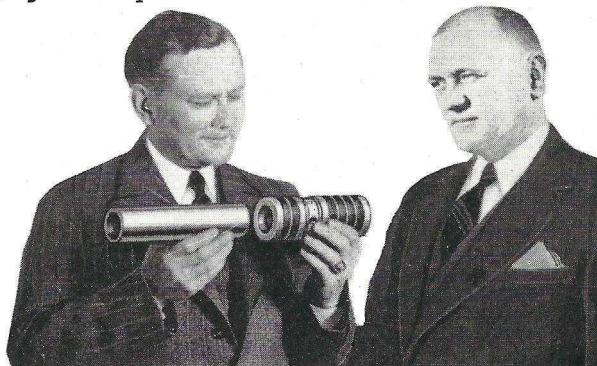


"Here's a plunger that works *entirely* clear of the cylinder



Left to right: Cylinder Cup—gland for taking up the packing — rings of packing, with greasing ring — plungers and yoke.

wall. You can see a saving right there: As there is no wear whatever on the cylinder wall, no lining of porcelain or other material is needed. And there's never any expense for replacing or re-lining worn cylinders."



"But the 'Friend's' plunger wears, and needs replacement, doesn't it?"

"Of course there is wear on the plunger—but so little wear that *grower after grower has used his 'Friend' pump for years without changing either the plungers or the packing.* Think of that!

"The plunger rides in packing that is kept well lubricated, by means of an Alemite fitting. Since oil and water don't mix, the abrasive spray solution is sealed out. Now you see why the plunger can last 5 years or more, if the lubrication is properly attended to.

"And by the way—the 'Friend' was the *first* sprayer to have positive and ample lubrication of the plungers, as well as all other working parts. The first completely lubricated sprayer was built by 'Friend' more than 30 years ago."

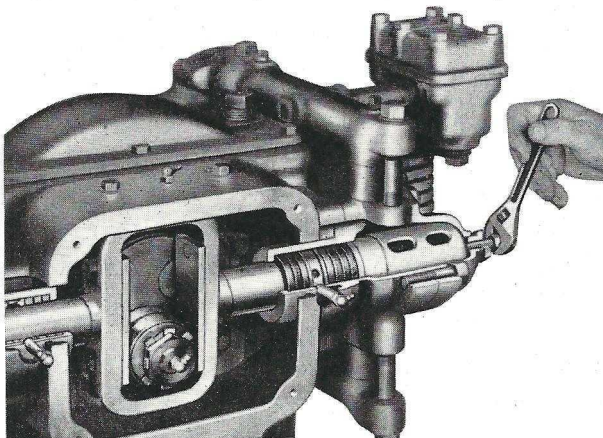
"But I don't understand how packing can last years without wearing, and causing a leak."

"The packing does wear, of course. But it's easily kept tight by a convenient take-up.

"FRIEND"

Beyond any Question—the Simplest

"When a trickle of solution starts to come from the cylinder of a 'Friend' pump, all you need do is just give the packing adjustment screw a very slight turn. This stops the leak instantly.

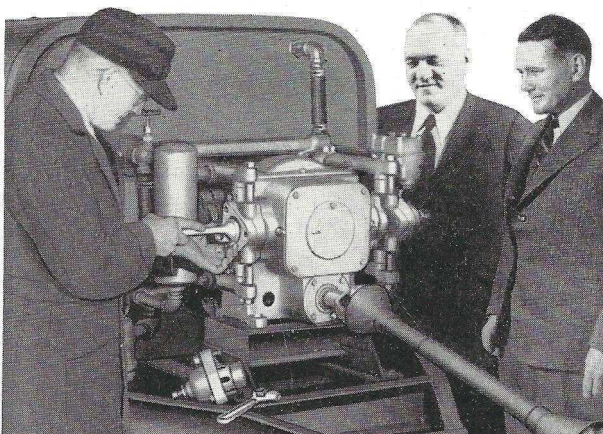


When a "Friend" pump's packing starts to leak, it is not necessary to take it apart and repack it—or install a set of cup leathers. A very slight turn on this adjusting screw stops the leak.

"And it's done from the outside—without even bothering to stop the pump or engine. Compare this easy adjustment to the job of tearing down a pump and installing a new set of cups. Not to mention the price of the cups."

"When a 'Friend' pump finally does need repacking, how long does it take?"

"It's so easy that you can complete the job before you could even tear down an ordinary pump to get at the cups.



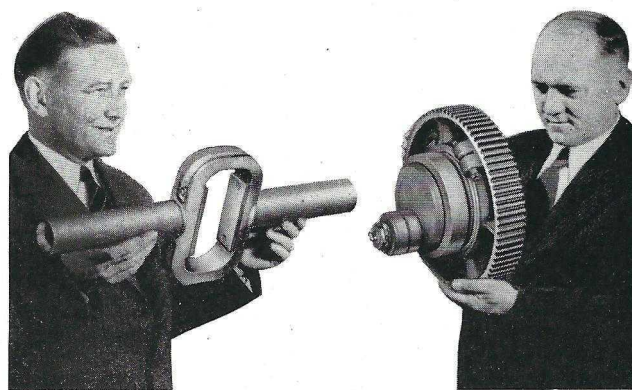
You may not have to replace your "Friend" Sprayer's packing in an entire season—or in several seasons. But when the time does come, you will appreciate how easy this pump is to repack.

"Growers really appreciate their 'Friend' pumps when they find that repacking takes only half an hour, or less! This is hard to believe if you have had the experience of spending three or four hours repacking other sprayers. But it's a fact that many a grower has repacked his two-cylinder 'Friend' in fifteen minutes.

"Now I want to show you how we have eliminated not only rubber cups and porcelain cylinder lining, but connecting rods and their bearings, and wrist pins.

"The plunger is bolted to a sturdy cast yoke, with another plunger opposite to it. This automatically gives perfect balance of the suction and discharge—whether your 'Friend' pump is a Duplex or Quadruplex. One plunger is always discharging when the opposite plunger is filling its cylinder. This does away with vibration—gives you the smoothest action you can get from a high-pressure pump. There's as much difference between a quadruplex 'Friend' and an ordinary spray pump—in smoothness and pumping power—as between a six-cylinder and four-cylinder car.

"The yoke and its two plungers form one sturdy rigid unit of a 'Friend' pump—and here's the part that drives it.



"You are holding the crank assembly—a drive gear with a roller-bearing crank that pushes the yoke back and forth as the gear rotates.

"There you have all the moving parts of a 'Friend' pump, except for ball valves in the cylinders and controller, same as on every sprayer.

"Compare these two simple sturdy units of the 'Friend' with the many wearing parts you have to maintain on a sprayer of ordinary design.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

and Most Reliable Sprayer Pump

"In a Duplex 'Friend' Pump you have practically 2 moving parts, in a Quadruplex, 3. No wonder the 'Friend' pump is so much easier to maintain in working order.

"Notice those two big Timken bearings that the crank assembly turns on—and the two smaller Timkens on the cranks that work in the yokes.

"You don't find one plain or babbitt bearing on any 'Friend' pump.



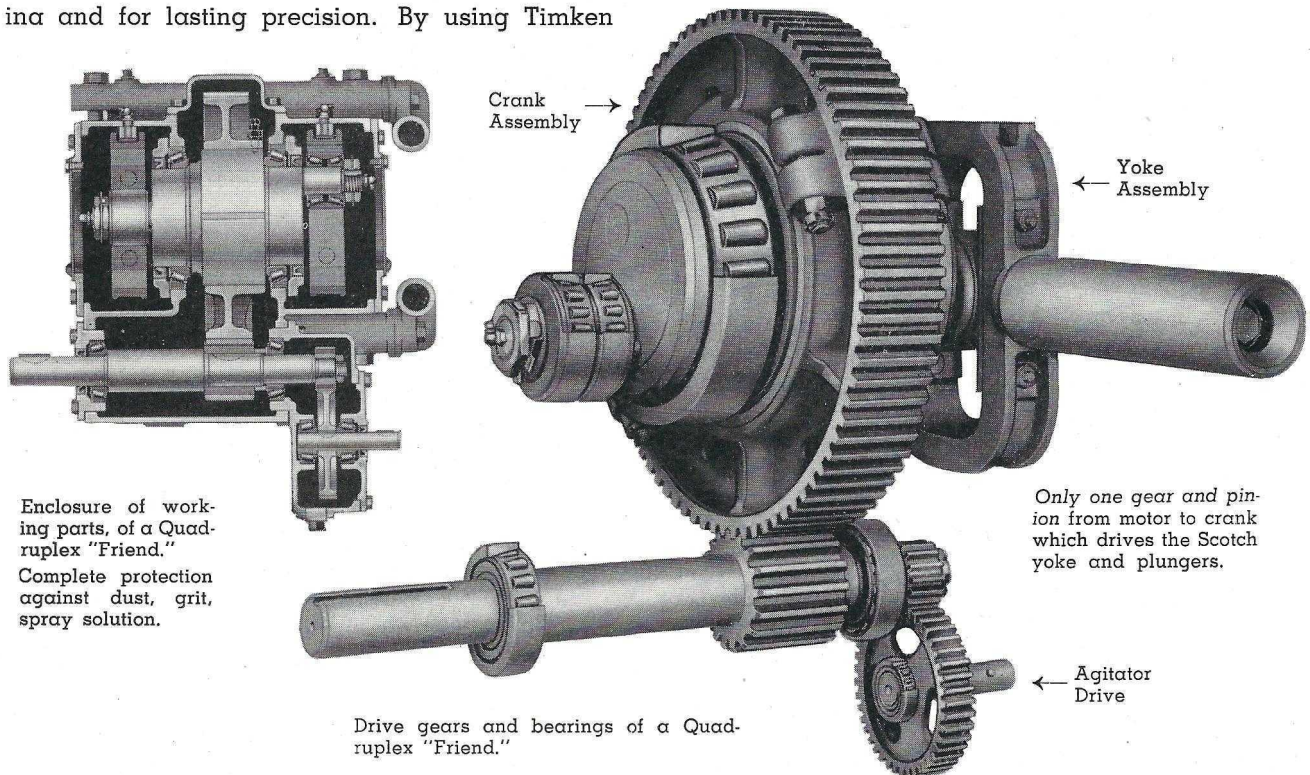
"The bearings of a high-pressure spray pump have to do a lot of hard work, that calls for stamina and for lasting precision. By using Timken

tapered roller bearings, we have provided for the elimination of friction and prevention of wear, and have also taken care of radial and thrust loads, resistance to shocks, and maintaining alignment. No other type of bearing can give these results.

"Each Timken bearing on a 'Friend' has been carefully selected to perform easily under the pump's maximum rated load. This saves the owner plenty, in repair expense and trouble. It guarantees the buyer of a 'Friend' dependable service, with minimum interruptions—because the Timken bearings on his spray pump are practically wear-proof.

"All that your pump's bearings need is occasional lubrication. You have the lowest costs for both lubrication and maintenance.

"Lubrication of a 'Friend' pump is also made easy and certain by providing an oil bath for the main gears and Timken bearings, with complete enclosure to protect these parts against dirt and grit. Every 'Friend' pump except the two smallest models, K and KA, has oil bath lubrication."



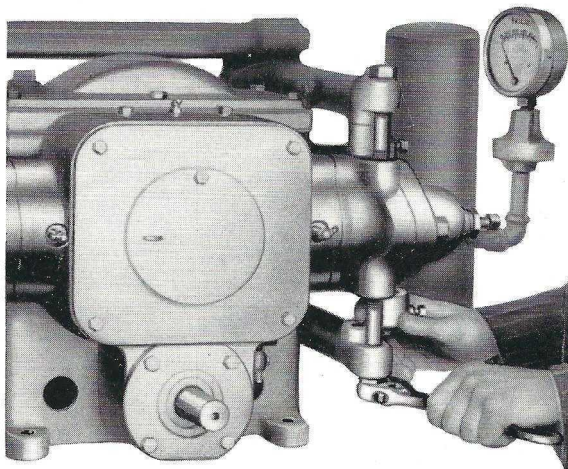
"FRIEND"

Beyond any Question—the Simplest

"How long does it take to clean a valve? That's more important than some folks realize, because you have to stop spraying to do it."

"That's right—every sprayer's valves coat up with solids from the spray material, and have to be cleaned. So it means a lot to have the sprayer on which valve-cleaning is quickest and easiest."

"On a 'Friend' pump it is only a matter of seconds to loosen one hex-head screw, and slide out the entire valve—cage, ball and seat. The 'Friend' is the only spray pump on which you can take off a valve ball and seat in less than thirty seconds."



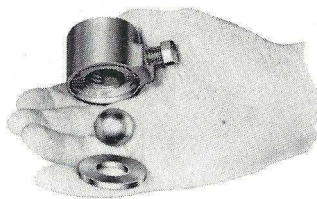
Loosen one screw—and take out the valve! That's how quickly you do it, when cleaning is needed. The valve is held on a flat surface, not screwed in to rust and stick.

"The seats do not stick, because they are neither threaded nor tapered. The 'Friend' valve seat rests on a smooth surface—held in its position by pressure. Always comes out easily when released, without the need of any special tools."

"You never have to fish for any valves that are buried deep in pockets, or go at a valve seat with a hammer or chisel to get it loose."

"The 'Friend's' complete set of valves, cages and seats can be taken out, cleaned and replaced in a few minutes. And all 'Friend' valve cages are equipped with drain plugs."

Valve cage, ball and seat, as they come off the pump when you loosen the screw (as shown in the picture above).



"Before you buy a sprayer, be sure to take out the pump's valve balls and seats—wipe them off—and put them back into place. Time yourself. The 'Instant-Clean' threadless valves of the 'Friend' will appeal to any grower who has ever fought a hard battle against time in spraying a lot of trees or field crops."

"And like the valves, the 'Friend' pump's manifolds are outside, easy to get at—with no water passages in the main castings."

"You mentioned a while ago that the pump holds the pressure at the same point, whether the guns are spraying or shut off."

"That's right. This automatic controller holds the pressure for which you have set it."

"When the discharge is shut off, the overflow valve automatically opens—and excess solution overflows at no pressure back into the spray tank. Pump and engine operate under no load. The pump, hose, and gun are all protected."

"The piston-type controller used on the 'Friend' is by far the most efficient and satisfactory we have seen. It is the result of 40 years of development work—during which we have improved the design in detail, year after year."

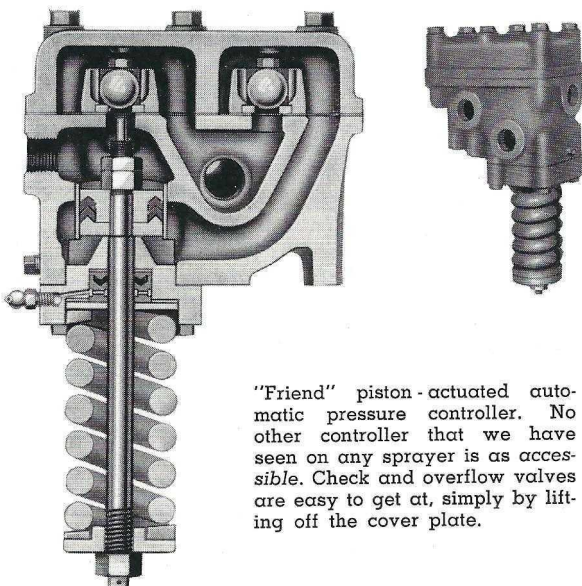
"Month after month the 'Friend' controller does its work dependably, without the slightest hitch. It is in a class by itself for smoothness and completeness of unloading, and easy access to valves."

"Pressure setting can be easily and quickly changed at any time, by outside adjustment—no internal adjustments are needed."

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

and Most Reliable Sprayer Pump



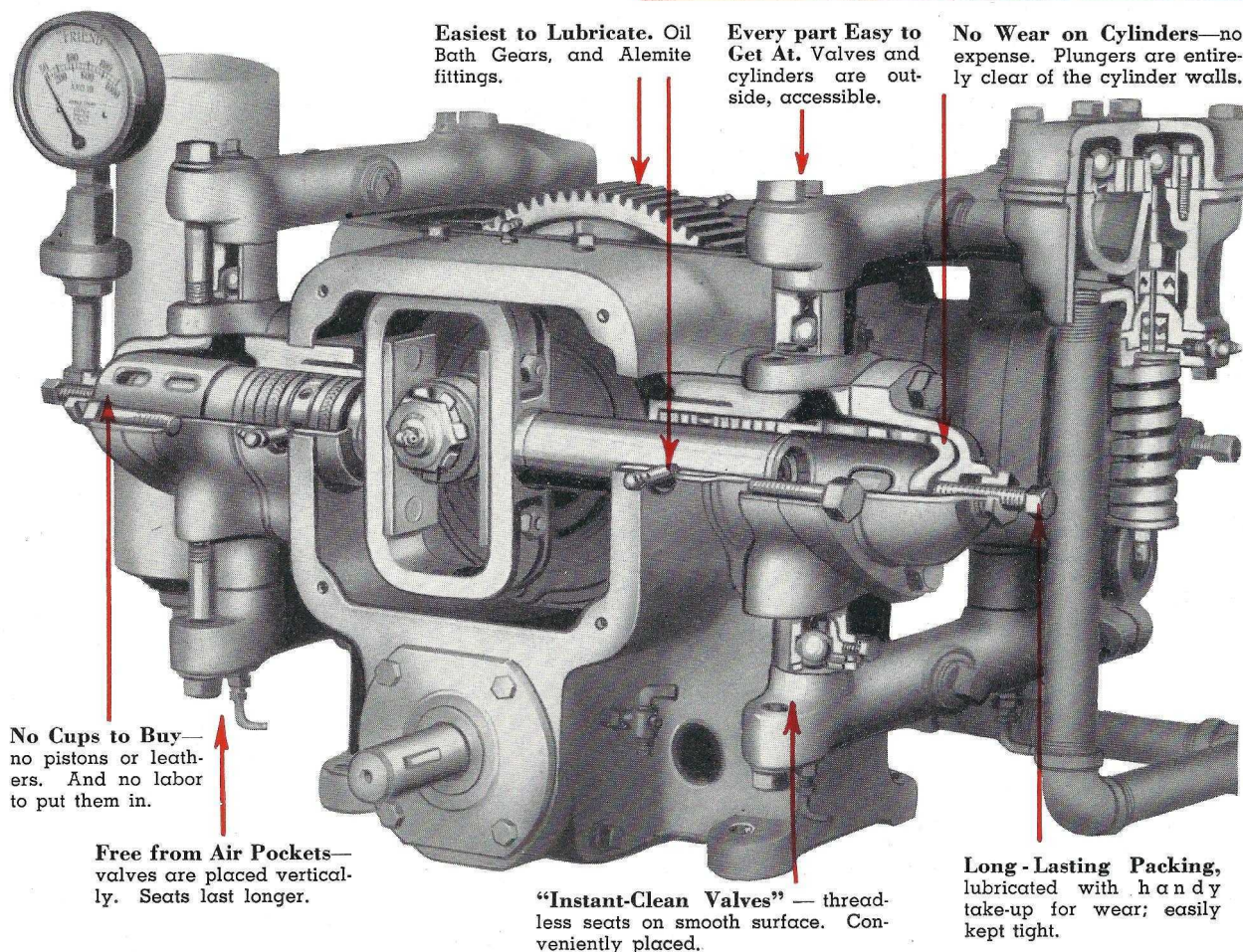
"Friend" piston-actuated automatic pressure controller. No other controller that we have seen on any sprayer is as accessible. Check and overflow valves are easy to get at, simply by lifting off the cover plate.

The Only Sprayer Pump that gives you these 11 Advantages

Of course the best feature of the "Friend" pump is the rugged strength of every part, made possible by the fact that it is *the simplest pump built for high-pressure spraying.*

This simplicity of design, and extra margin of reliability, will save you many hours of spraying time, and many dollars of repair expense.

And there are other excellent features that make it easier for you to keep a "Friend" in running order; Timken bearings; oil-bath gears and Alemite fittings; perfect balance of suction and discharge; unequalled ease and speed of re-packing—and the features shown in the cutaway picture below.



Easiest to Lubricate. Oil Bath Gears, and Alemite fittings.

Every part Easy to Get At. Valves and cylinders are outside, accessible.

No Wear on Cylinders—no expense. Plungers are entirely clear of the cylinder walls.

No Cups to Buy—no pistons or leathers. And no labor to put them in.

Free from Air Pockets—valves are placed vertically. Seats last longer.

"Instant-Clean Valves"—threadless seats on smooth surface. Conveniently placed.

Long-Lasting Packing, lubricated with handy take-up for wear; easily kept tight.

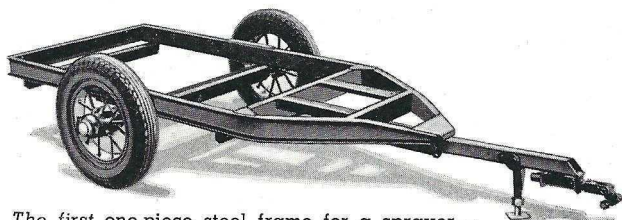
"FRIEND"

Every Part of the "FRIEND" built

You get Many Other Advantages because of "Friend" Leadership

Certainly the "Friend" pump design is the most important thing to consider when you are buying a sprayer—but this is by no means the only feature that makes the "Friend" the most satisfactory sprayer to own and to use.

"Friend" Leadership in sprayer design has resulted in the development of many chassis, tank, and accessory improvements. These pages give just a few examples.



The first one-piece steel frame for a sprayer—completely welded, without a bolt or rivet to work loose—was introduced by "Friend."

For instance, Friend engineers were the first to give the grower a sprayer with a completely welded steel frame—one piece, without a bolt or rivet to work loose.

The first flat-top round tank, combining strength with compactness and maximum capacity, was introduced by Friend.

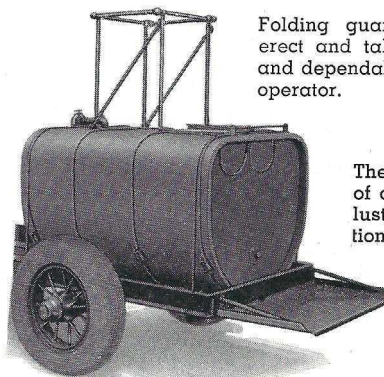
The first spray gun—giving much faster and better coverage than a spray nozzle at the end of a long pipe or bamboo pole—was a "Friend."

The extremely thorough end-to-center agitation of spray material in the tank is—in the opinion of

many growers—one of the finest features of the "Friend" Sprayer.

Other "Friend" features that owners like especially well are the roomy and substantial step platforms—sturdy and practical guard rails—dependable tanks either of cypress or steel, as preferred.

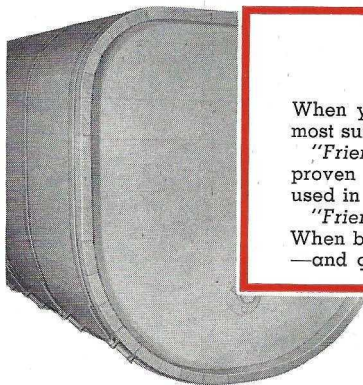
When you are buying a sprayer, it pays to buy from an organization that is not satisfied to follow along in the footsteps of others, but has the courage and vision to pioneer when a new idea means a more efficient machine.



Folding guard rail that's easy to erect and take down, but is strong and dependable, real support for the operator.

The folding step platform of a "Friend" is another illustration of careful attention to details. Sturdy, rigid, solid under a man's feet — and plenty of room!

No matter how well pleased our customers are with a "Friend" machine, our engineering staff is not satisfied if something can be done to make it better. This is the policy that has won "Friend" the confidence of thousands of successful, progressive growers.

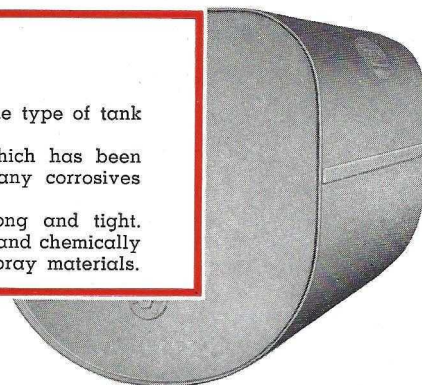


CYPRESS OR STEEL— "Friend" Tanks Are Top Quality

When you buy a "Friend" Sprayer you can choose the type of tank most suitable for your needs.

"Friend" Cypress Tanks are built of the wood which has been proven best by many years' use. Not affected by any corrosives used in spray mixtures, they last indefinitely.

"Friend" Steel Tanks are electrically welded, strong and tight. When built they are thoroughly cleaned, mechanically and chemically—and given a protective coating highly resistant to spray materials.



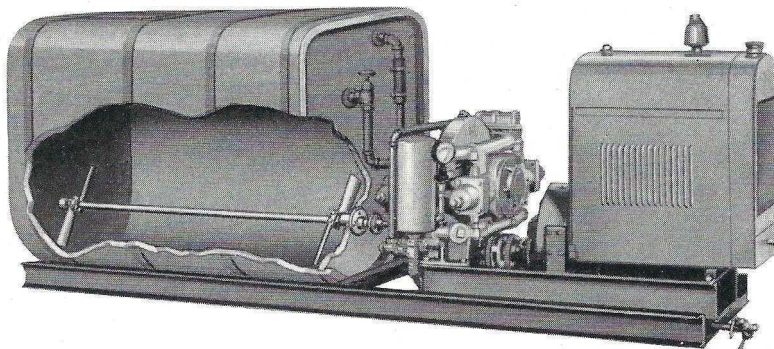
Thousands of successful growers tell you:
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

to the Same High Standard

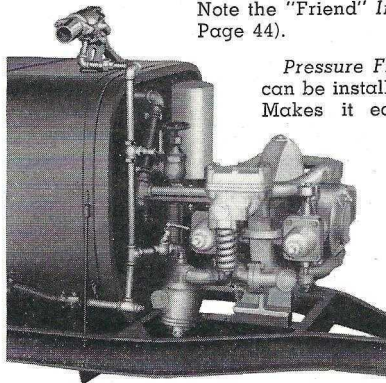
End-to-Center Agitation Keeps Solution Uniform. You protect foliage better with "Friend" Sprayers because the spray material is uniform, throughout the application.

The right proportion of spray materials is delivered from start to finish, whether the tank is full or nearly empty.

End-to-center currents agitate the solution from top to bottom—and from one end of the tank to the other. There are no "dead" corners.



Note the "Friend" Inverted Tank Filler (see Page 44).



Pressure Flushing Attachment that can be installed on any suction filter. Makes it easy to back the flow through the filter instantly, without removing the screen or disturbing any other part. Just a turn of the valve—and you get thorough flushing.

When you buy a "Friend," you get first of all a sprayer that delivers the volume and pressure you need with least trouble and upkeep.

You also get a machine that will please you in many other ways, by its handiness and convenience, every time you use it.

Fair Prices for Parts. When the time comes that you need repair parts, you will like the reasonable prices. This is one more reason why the best friends we have are growers who have used "Friend" Sprayers for years.

Stocks of "Friend" parts are carried all over the country, in locations convenient to our customers. You get new parts promptly when needed.

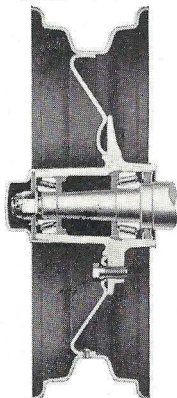
Our dealers take the same pride as our factory organization in the Satisfaction given by "Friend" Sprayers—especially in the many "Friends" that have served for years without causing a single delay, and with only trifling expense for upkeep.

FRIEND MANUFACTURING CO.

"Friend" Sprayers are Equipped with Best Wheels Made

When you buy a "Friend" Sprayer, its wheel equipment is the finest obtainable.

Timken Tapered Roller Bearings assure you of easier draft of the sprayer—and allow higher hauling speeds than are practical with ordinary roller bearings. (Timkens are furnished on all "Friend" Sprayers except the K Lowdown and Combination.)



Tight Seal protects bearings — keeps the lubricant in, and keeps dirt and grit out (see photo at left). This protection lengthens the life of bearings.

Carefully engineered to the job. Generous axle diameters, and bearing sizes, provide an extra margin of strength—assuring you of true "Friend" Reliability from your sprayer's wheels.

Quick Tire Changes—because these wheels are center-mounted, easily taken off without disturbing the hub (or the brake drum, if brakes are used).

Bendix Brakes—Heavy-Duty Truck Type—can be furnished

Your "Friend" Sprayer can be equipped with Bendix internal expanding mechanical brakes—the same type as the brakes used on heavy-duty trucks.

These brakes can be furnished for 5 in. or 7 in. x 20 in. single or dual F. B. rims; 6.00 or 8.00 x 24 in. single D. C. rims; or 4.00 x 16 in. single D. C. rims.

(Steel-tired wheels can be equipped with wood block brakes.)



"FRIEND"



Tractor Trailers that have

Growers who have used "Friends" with tractors will not even consider any other sprayer for this service—because the "Friend" design gives such striking advantages. Here are a few:

No Chains and Sprockets grinding in the tractor's dust. The "Friend" design makes possible a direct connection from the tractor to the pump countershaft. You don't have the expense of maintaining outside bearings, chains, etc.

Dustproof Pump—fully enclosed. Every one of the "Friend" pumps listed on these pages is completely sealed against dirt and grit. Streamlined covers are solely to protect low-hanging fruit and foliage.

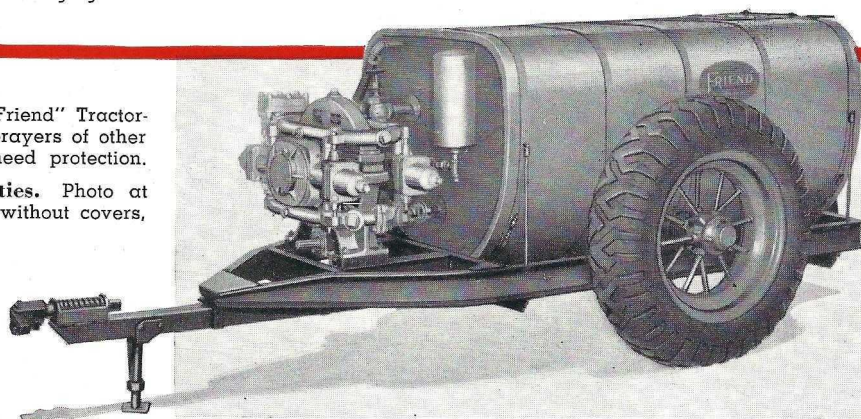
Complete Protection against Drive Shaft Thrust. The Timken bearings of the "Friend" pump's countershaft are made to take thrust loads, as well as radial loads. What is usually a "trouble point" on tractor-trailer sprayers is a strong point on the "Friend."

No Agitator Chains, which on some tractor-trailer sprayers have caused extremely high repair costs.

WITHOUT COVERS—You see many more "Friend" Tractor-Trailer Sprayers in service without covers, than sprayers of other makes—because the "Friend's" pump does not need protection.

15 to 52 gallons-per-minute pump capacities. Photo at right shows the "Friend" Tractor-Trailer Sprayers without covers, 400 to 600 gallon tank capacity.

Specifications of "Friend" Standard Tractor-Trailer Sprayers are given in the table below. The same figures apply to both the Streamlined and Open models—with either steel or wood tanks (interchangeable).

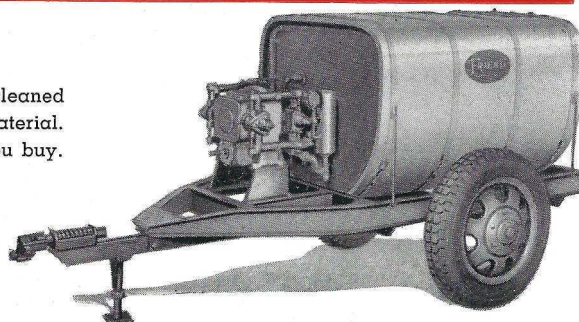


Specifications (for either Streamlined or Open)	Model NX 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model UXA 20 GPM See Page 32	Model FX 22 GPM See Page 34	Model AXB 32 GPM See Page 36	Model YX 52 GPM See Page 38
Code	NXTUB	UXTUB	UATON	FXRAB	ABTEH	YACAS
Pressures	700 lbs.	700 lbs.	700 lbs.	800 lbs.	800 lbs.	800 lbs.
Tank capacity	200 gal.	200 gal.	300 gal.	300 gal.	400 gal.	500 gal.
Overall length	84"	84"	102"	102"	119"	144"
Overall width	56"	56"	70"	70"	70"	71"
Overall height	56"	56"	59"	59"	57"	59"
Tread	48"	48"	58"	58"	59"	59"
Wheels	4.00" x 16" D.C.	4.00" x 16" D.C.	5" x 20" F. B.	5" x 20" F.B.	8" x 24" D.C.	8" x 24" D.C.
Ground Clearance Using pneu. tires	11" 6.00" x 16"	11" 6.00" x 16"	14" 6.00" x 20"	14" 6.00" x 20"	12" 9.00" x 24"	14" 11.25" x 24"
Approx. shpg. wt.	1250 lbs.	1350 lbs.	1900 lbs.	2100 lbs.	2550 lbs.	3000 lbs.
Steel wheels	48" x 6"	48" x 6"	48" x 8"	48" x 8"	54" x 8"	54" x 8"

Note: Other rim sizes available: dual 5 x 20 in. F. B., 7 x 20 in. F. B., 6.00 x 24 in. D. C., 6 x 36 in. D. C. Tanks of other capacities can be furnished—the standard sizes are given above.

Pump is Completely Enclosed, without any cover—can be cleaned off with a hose. Needs no protection against dust or spray material. A "Friend" feature that you'll appreciate, no matter what style you buy.

Photo at right shows "Friend" Tractor-Trailer Sprayers, without covers, of 200 to 300 gallon tank capacity.



Thousands of successful growers tell you:
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

proven Unrivalled for Dependability

Trouble-Free Agitator Packing Box. You have probably found this a serious item of expense on other sprayers, and will be well pleased to find that the upkeep cost is practically nothing when you have a "Friend." A better packing box—and it does not have to take the side pull of a chain-and-sprocket drive, because of the "Friend" direct connection to agitator shaft.

The Most Reliable Spray Pump Built, with only $\frac{1}{2}$ to $\frac{1}{3}$ as many moving parts—by far the easiest to maintain in working order.

Quick Connection to Any Tractor—pole with spring hitch is adjustable for length and height.

Axle and Wheels Adjustable, forward and back, for best weight distribution.

One-Piece Steel Frame, electrically welded—not a bolt or

rivet to work loose. Giving a permanently rigid mounting for pump and tank. (The first sprayer to have a one-piece welded steel frame was the "Friend" Tractor-Trailer).

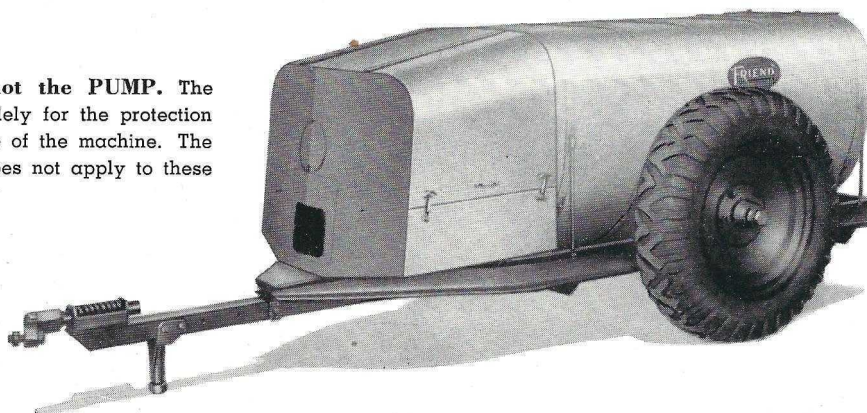
Cypress or Steel Tanks Interchangeable on all sizes of "Friend" Tractor Trailer Sprayers.

In Every Detail you will find that the design of "Friend" Tractor-Trailer Sprayers is more practical. End-to-center agitation keeps the spray material uniform, whether the tank is full or nearly empty. Ample filter protection prevents oversize particles from reaching the spray nozzles. Booms and other accessories show the same superiority of design.

See the Special Models of "Friend" Tractor-Trailer Sprayers, on the 4 pages following. (These 2 pages show the Standard machines).

Streamlined to guard the CROP—not the PUMP. The streamline covers of these sprayers are solely for the protection of fruit and foliage, and neater appearance of the machine. The usual need for protecting a spray pump does not apply to these 100%-dustproof "Friend" pumps.

Photo at right shows Streamlined "Friend" Tractor-Trailer Sprayers of 400 to 600-gallon tank capacity.



Safety Shield is furnished—integral with Power Take-off Shaft



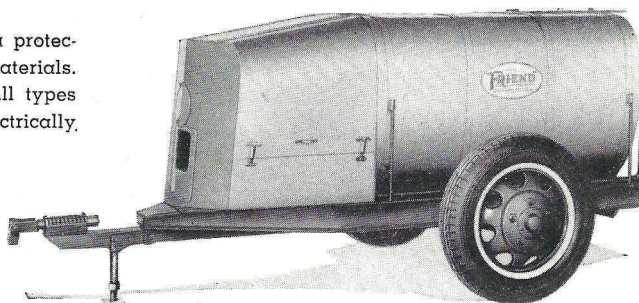
Telescopic Shaft for Drive from Tractor to Sprayer

This type of shaft, with an oversize universal coupling at each end, has been found most dependable, to take care of variations in moving over rough ground. The telescope protects the universal joints on the turns.

Furnished as standard equipment with every "Friend" tractor-trailer sprayer

Steel Tanks are electrically welded, and given a protective coating which is highly resistant to spray materials. Tight cover on filling hole. Hood is side-lifting. All types of "Friend" Tractor-Trailer Sprayers have electrically welded one-piece steel frame.

Photo at right shows Streamlined "Friend" Tractor-Trailer Sprayers of 200 to 300-gallon tank capacity.



"FRIEND"

Row-Crop Tractor-Trailers;

Built in 5 Sizes

Model UX Row-Crop Tractor-Trailer is shown at right—specifications of this sprayer are given below, together with figures on one smaller model and three larger.

These machines have every one of the features described at the top of Pages 11 and 12.

"Friend" Row-Crop Tractor-Trailers are usually furnished without streamline covers, as listed below—the pump needs no protection, being fully enclosed.

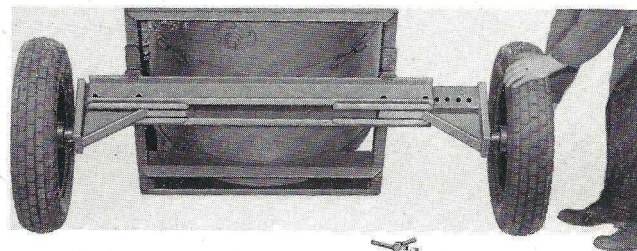
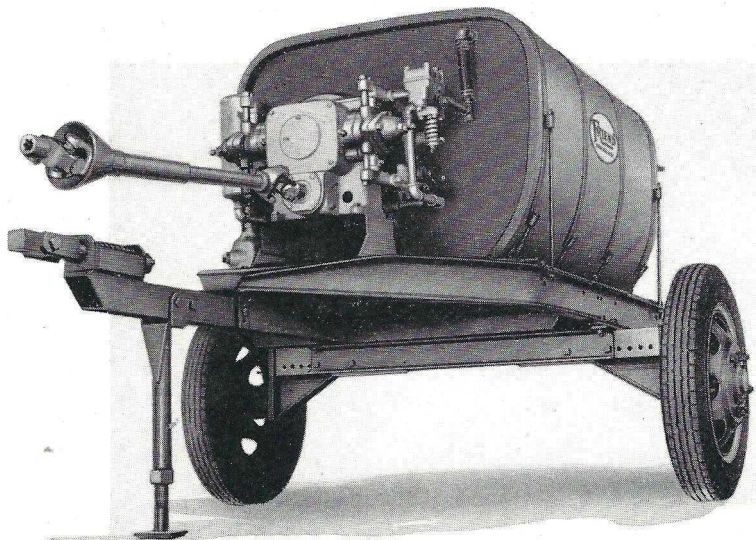
However, streamline covers can be furnished, if desired, for neater appearance.

All 5 Sizes Have the "Friend" Easy-Adjustable Axle

When you buy a "Friend" Tractor-Trailer for spraying row crops, you get the axle shown at the right as standard equipment.

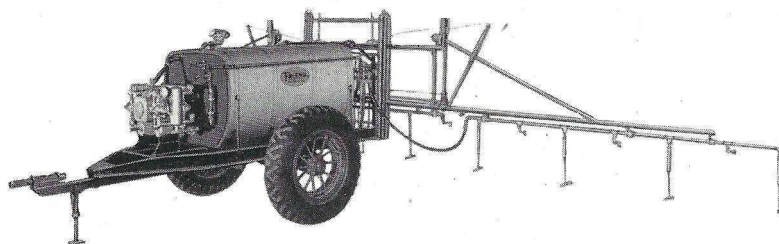
This design eliminates the need for several inches of exposed axle shaft which might corrode, and make it difficult to change the tread when necessary.

The sturdy welded axle not only makes tread changes easy, but gives greater strength and rigidity.



The Ground Clearance given is with Arched axle; for straight axle, deduct 6 inches.

Specifications	Model NX 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model FX 22 GPM See Page 34	Model AXB 32 GPM See Page 36	Model YX 52 GPM See Page 38
Code	(Row Crop) NXTUB	(Row Crop) UXTON	(Row Crop) FXRAB	(Row Crop) ABTIK	(Row Crop) YACHT
Tank Capacity	200 gal.	300 gal.	300 gal.	400 gal.	400 gal.
Overall Length	84 in.	103 in.	103 in.	120 in.	125 in.
Overall Width	68 to 80 in.	71 to 83 in.	71 to 83 in.	71 to 83 in.	71 to 83 in.
Overall Height	63 in.	66 in.	66 in.	66 in.	66 in.
Tread adjustable from	60 in. to 72 in.	60 in. to 72 in.	60 in. to 72 in.	60 in. to 72 in.	60 in. to 72 in.
Ground clearance	17 in. (With 6.00-16 in. tires)	20 in. (With 6.00-20 in. tires)	20 in. (With 6.00-20 in. tires)	20 in. (With 32 x 6 in. tires)	20 in. (With 32 x 6 in. tires)
Wheels	16-4.00 in. drop center rims	20-5.00 in. flat base rims	20-5.00 in. flat base rims	20-5.00 in. flat base rims	20-5.00 in. flat base rims
Shipping Weight	1150 lbs.	1700 lbs.	2000 lbs.	2350 lbs.	2750 lbs.



Above Row Crop Tractor-Trailers also available with straight adjustable tread axle using following rims:

Wheel Size	Tire	Ground Clearance
24-6.00 in. drop center	9.00—24 in.	19 in.
24-8.00 in. " "	11.25—24 in.	20 in.
36-6.00 in. " "	9.00—36 in.	24 in.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

Special Narrow and Low Types

Sprayers for Close Plantings — and for Low Foliage

Here are two special "Friend" tractor-trailers which have become very popular during the past few years—in the locations for which they are particularly suited.

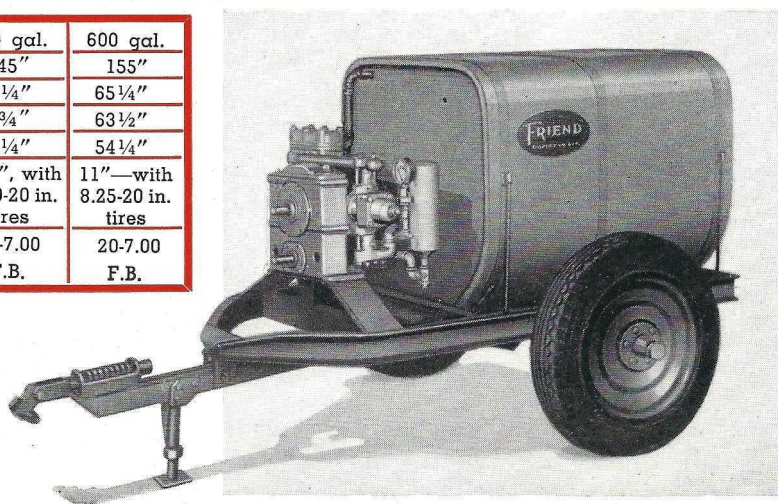
"Friend" Special Narrow Tread Tractor-Trailers

Successfully used in spraying citrus groves, vineyards, hops, and other close-planted crops. The tread is 7 in. to 12 in. narrower than that of a standard sprayer of equal tank capacity. Overall width is 6 in. to 10 in. less.

Can be furnished with any of the following pumps: NX, UX, UXA, FX, AXB. Dimensions as given below are the same, regardless of which pump is used.

Tank Capacity	300 gal.	400 gal.	500 gal.	600 gal.
Overall Length	104½"	126"	145"	155"
Overall Width	61¾"	63¾"	65¼"	65¼"
Overall Height	54¼"	61¾"	62¾"	63½"
Tread	50¾"	52¾"	54¼"	54¼"
Ground Clearance	10"—with 6.00-20 in. tires	11"—with 6.50-20 in. tires	10½", with 7.50-20 in. tires	11"—with 8.25-20 in. tires
*Wheels	20-5.00 F.B.	20-5.00 F.B.	20-7.00 F.B.	20-7.00 F.B.

*Can furnish the 400, 500 and 600 gallon sizes with 8.00-24" Drop Center Rim Wheels as optional equipment.



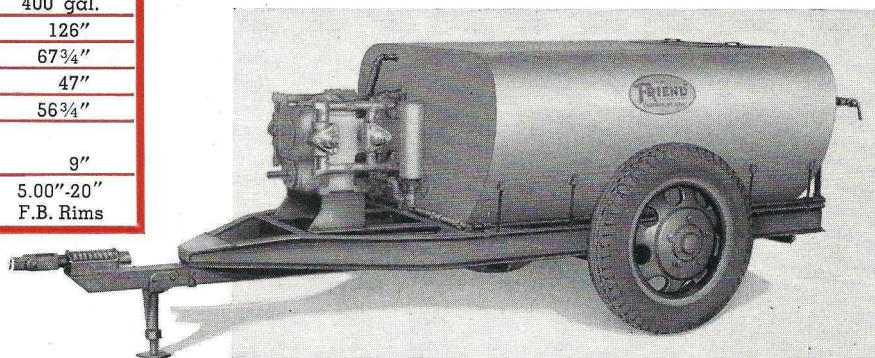
"Friend" Special Low Clearance Tractor-Trailers

The sprayer for orchards with low-hanging fruit and foliage—has been especially favored by peach growers. The tank is 6 in. to 12 in. lower than tanks of standard tractor-trailer sprayers, of 300 and 400-gallon tank capacity.

Can be furnished with any of the following pumps: NX, UX, UXA, FX, AXB. Dimensions as given below are the same, regardless of which pump is used.

Tank Capacity	300 gal.	400 gal.
Overall Length	108"	126"
Overall Width	67¾"	67¾"
Overall Height	47"	47"
Tread	56¾"	56¾"
Ground Clearance with 6.00"-20" tires	9"	9"
Wheels	5.00"-20" F.B. Rims	5.00"-20" F.B. Rims

Built by
"FRIEND" MFG. CO.
Gasport, N. Y.

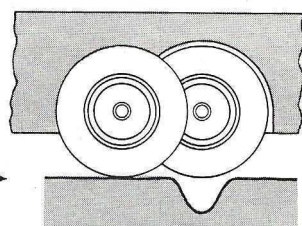


(See "Friend" HIGH DRAWBAR Tractor-Trailer — Page 14)

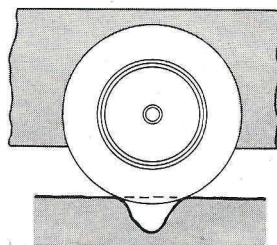
"FRIEND"

Soft Ground and Ditches are Easy for

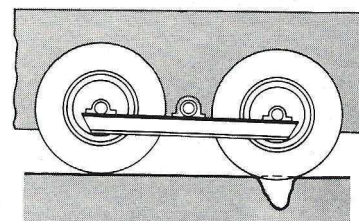
Crossing a Ditch or Hole →



"Friend" Twin-Wheel rolls right across



Two-wheeled sprayer bumps down in



Tandem-wheel sprayer bumps twice

The above drawings show why the going is so much smoother when crossing furrows or rough ground with a "Friend" Twin-Wheel. Saves the wheels, tires, wheel bearings, axles—and a tire machine. You don't need splash-plates in the tank, which means better agitation.

It keeps Your Sprayer on the level in Rough and Sandy going

The "Friend" Twin-Wheel is the ideal mounting for growers using tractor drawn or tractor-trailer sprayers, in orchards with rough or soft ground.

Saves the Sprayer — Saves Tires — Protects Ditches.

This patented Twin-Wheel design first proved its worth in Northwest orchards, where the moving of two-wheeled and tandem-wheeled sprayers over irrigation ditches had been a serious problem. Jolting did not improve the machines—and made plenty of extra expense for re-cutting ditches.

All kinds of mountings were tried by Northwest orchardists — until the "Friend" patented Twin-

Wheel was developed.

No matter where your orchard is, look over a "Friend" Twin-Wheel. Ride the sprayer as it moves smoothly over rough ground. Study its tracks after it has made a sharp turn.

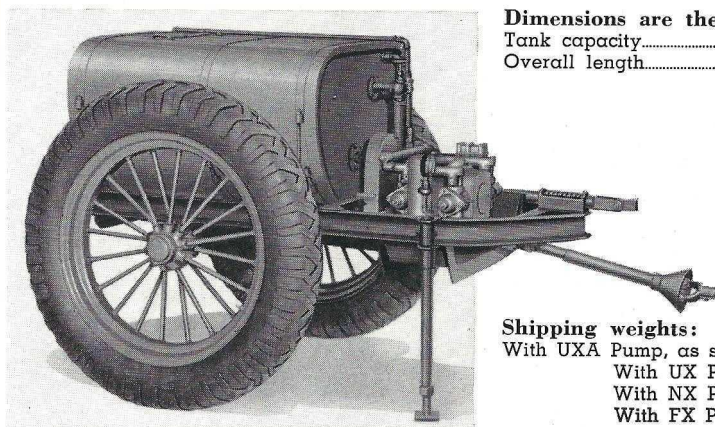
Costs so much less than a tracklayer mounting that there is no comparison, but does exactly what you want an orchard sprayer mounting to do.

The drawings above show some of the improvement that the Twin-Wheel gives you, as compared to the ordinary two-wheel mounting, and the tandem-wheel.

"Friend" High Drawbar Tractor Trailer

Model UXA is shown below, with the quadruplex "Friend" pump shown on Page 32, delivering 20 gal. per min. up to 700 lb. pressure. This style of Tractor Trailer requires a drawbar hitch above the power take-off shaft.

This sprayer can also be furnished with NX, UX and FX pumps. (Pages 30, 32, and 34).



Dimensions are the same in each case:

Tank capacity.....	200 gal.
Overall length.....	91 in.
Overall width.....	70 to 82 in.
Overall height {	Straight axle.....55 in.
{	Arched axle.....61 in.
Tread adjustable from.....	60 to 72 in.
Ground clearance:	
Straight axle	20 in.
Arched axle	26 in.
(With 9.00-24 in. tires)	
Wheels: 24-6:00 in. drop center rims. (Also available with 48 x 6 in. Timken bearing steel wheels.)	

Shipping weights:

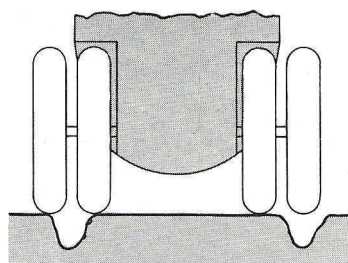
With UXA Pump, as shown, code UATEX.....	1450 lb.
With UX Pump, Code UXTEX.....	1425 lb.
With NX Pump, Code NXTEX.....	1350 lb.
With FX Pump, Code FXRUL.....	1650 lb.

Thousands of successful growers tell you:

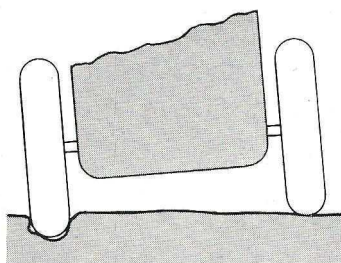
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

"Friend" (Patented) Twin-Wheel design

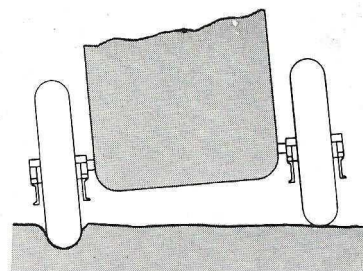
**Running
Parallel
to Rut
or Ditch →**



"Friend" Twin-Wheel
rolls right along



Two-wheeled sprayer
tips into ditch

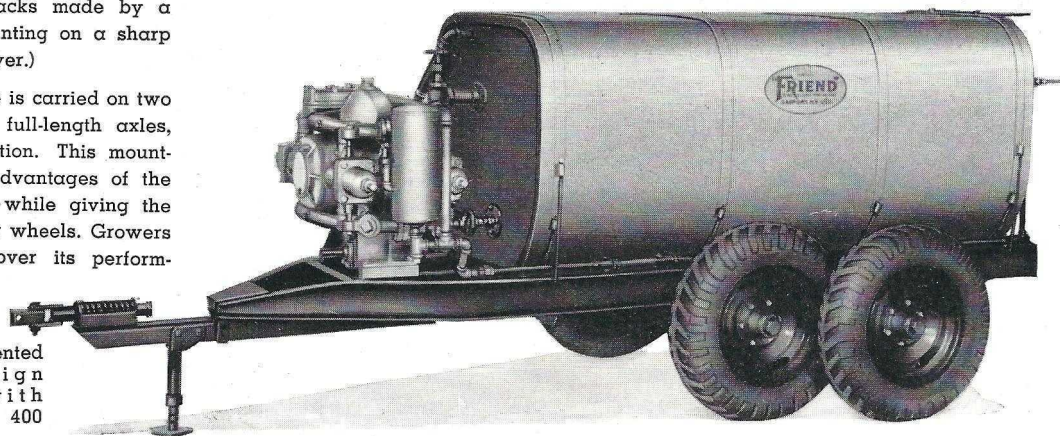


Tandem-wheel
grips the ditch wall

In irrigated sections, growers have found it expensive business to turn sprayers standing in ditches, and tear down the banks. And in any orchard, tires that are pulled against ruts are bound to wear faster. When the ground is hard the tire can be pulled clear off the wheel.

Twin-Wheel Makes Smooth Turns—Without Sliding. Examine the tracks of a "Friend" Twin-Wheel that has been pulled right around in a sharp turn. You will see scarcely any mark of a slide—because of the close centers of the twin wheels. (Compare with tracks made by a tandem-wheel mounting on a sharp turn, or a track-layer.)

The entire machine is carried on two rigid independent full-length axles, of simple construction. This mounting has all the advantages of the two-wheel trailer, while giving the full support of four wheels. Growers are enthusiastic over its performance.



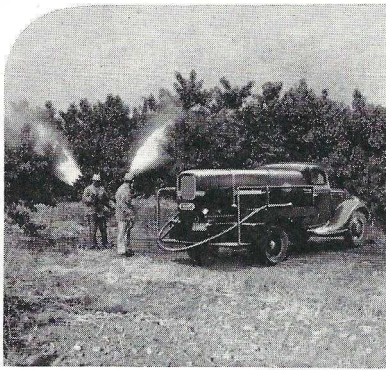
"Friend" Patented
Twin-Wheel design
Tractor-Trailer, with
AXB Pump and 400
gal. tank.

Pump Capacities 20 to 52 gal. per minute	Specifications (with either Wood or Steel Tank)		
Tank capacity.....	400 gal.	500 gal.	600 gal.
Overall length.....	126 in.	145 in.	155 in.
Overall width.....	74 in.	74 in.	74 in.
Overall height.....	56 in.	56 in.	57 in.
Mean tread.....	57 in.	57 in.	57 in.
Wheels (Drop center rims).....	4.50-16	4.50-16	4.50-16
Ground clearance.....	11 in.	11 in.	12 in.
Using pneumatic tires.....	6.50-16	6.50-16	7.50-16
Code—With UXA Pump (Page 32).....	UXWFS	UXTWO	UXWSS
Shipping weight—With UXA Pump.....	1900 lbs.	2125 lbs.	2200 lbs.
Code—With FX Pump (Page 34).....	FXWFS	FXTWO	FXWSS
Shipping weight—With FX Pump.....	2100 lbs.	2325 lbs.	2400 lbs.
Code—With AXB Pump (Page 36).....	AXWFS	AXTWO	AXWSS
Shipping weight—With AXB Pump.....	2300 lbs.	2525 lbs.	2600 lbs.
Code—With YX Pump (Page 38).....	YXWFS	YXTWO	YXWSS
Shipping weight—With YX Pump.....	2700 lbs.	2925 lbs.	3000 lbs.

Special Note: All Model YX trailers are six inches longer than standard overall length shown above.

All above models available with **streamlined pump hood**, to protect low-hanging foliage and fruit, except Model YX.

"FRIEND"



Skid-Mounted outfits

You will find that the "Friend" line offers the most reliable Truck Sprayers you can buy.

If you got no other advantage than the unequalled dependability of the "Friend" Pump, these truck sprayers would probably be your choice. And there are other important features of design:

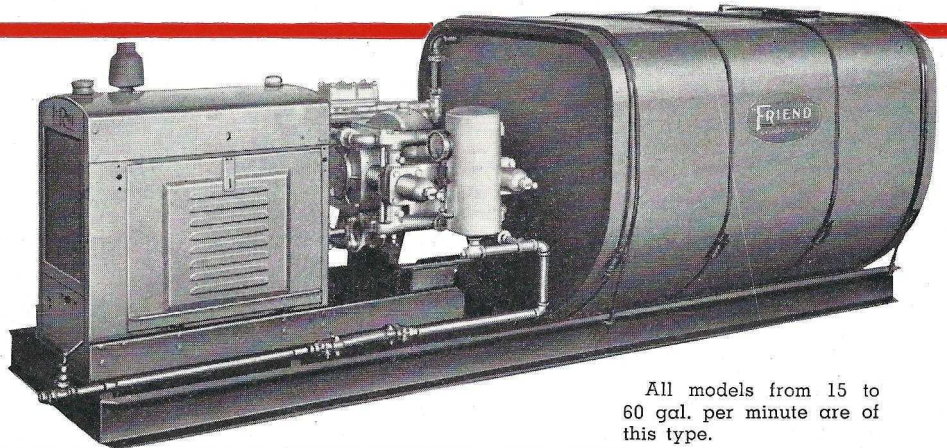
Direct in-line drive, through flexible Thermoid couplings from enclosed reduction gear on engine to pump, on all models for which suitable power units are obtainable.

Direct drive to agitator through enclosed oil bath gear reduction and flexible coupling, which prevents any whip in the agitator shaft. No agitator chains.

WITHOUT COVERS, Engine-Driven. Photo at right shows the quadruplex "Friend" Model FX skid sprayer. The pump is fully enclosed, dust proof.

A complete Spraying plant, ready to mount on truck and start work.

6 to 60 gal. per minute pump capacities.



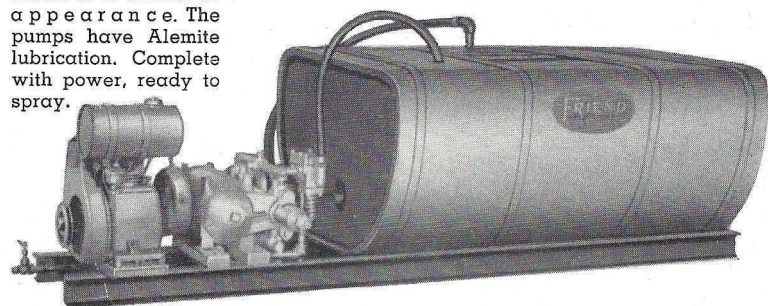
All models from 15 to 60 gal. per minute are of this type.

Specifications, "Friend" Skid Sprayers WITHOUT COVERS	Model NX 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model UXA 20 GPM See Page 32	Model FX 25 GPM See Page 34	Model AXB 35 GPM See Page 36	Model YX 60 GPM See Page 38
Code	NXSER	UXSER	UASON	FXRAS	ARRAY	YOLOV
Pressures	600 lbs.	600 lbs.	700 lbs.	700 lbs.	700 lbs.	800 lbs.
Engine	15 h.p. Wisconsin	16 h.p. Wisconsin	14 h.p. LeRoi	16 h.p. LeRoi	28 h.p. Hercules	43 h.p. LeRoi
Tank Capacity	200 gal.	200 gal.	300 gal.	300 gal.	300 gal.	500 gal.
Overall Length	100"	100"	122½"	122½"	127¼"	161"
Skid Length	100"	100"	122½"	122½"	122½"	155"
Overall Width	37½"	37½"	44"	44"	44"	56"
Skid Width	33"	33"	33"	33"	33"	36"
Overall Height	43"	43"	42½"	42½"	42½"	45"
Approx. Shpg. Wt.	1300 lbs.	1400 lbs.	1800 lbs.	2100 lbs.	2400 lbs.	3100 lbs.

Two Low-Priced Models, 6 and 10 gal. per minute

Specifications, "Friend" Skid Sprayers Models K and KA	Model K 6 GPM See Page 26	Model KA 10 GPM See Page 28
Code	SURGE	STORE
Pressures	400 lbs.	400 lbs.
Engine	2½ h.p. Wis.	4 h.p. Wisconsin
Tank Capacity	100 gal.	200 gal.
Overall Length	86"	101"
Skid length	86"	101"
Overall width	38"	44"
Skid width	22½"	25"
Overall height	26"	28"
Approx. Shpg. Wt.	830 lbs.	1325 lbs.

Photo below shows the duplex "Friend" Model KA skid sprayer. The Model K is similar in appearance. The pumps have Alemite lubrication. Complete with power, ready to spray.



Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

for Spraying With Truck

Electrically welded one-piece steel frame for all models, with engine, pump and tank compactly mounted.

Wood or steel tanks optional, interchangeable on all models except K and KA.

The Simplest, Most Dependable Pump that's built for high pressure spraying—giving steadiest service, with lowest maintenance cost. Only 1/2 to 1/3 as many moving parts as other spray pumps of like capacities.

Pump Needs No Cover—all but the two smallest sizes are fully enclosed and can be cleaned off with a hose. Streamline covers give a neater appearance, and protect low-hanging fruit, but are not necessary on a "Friend."

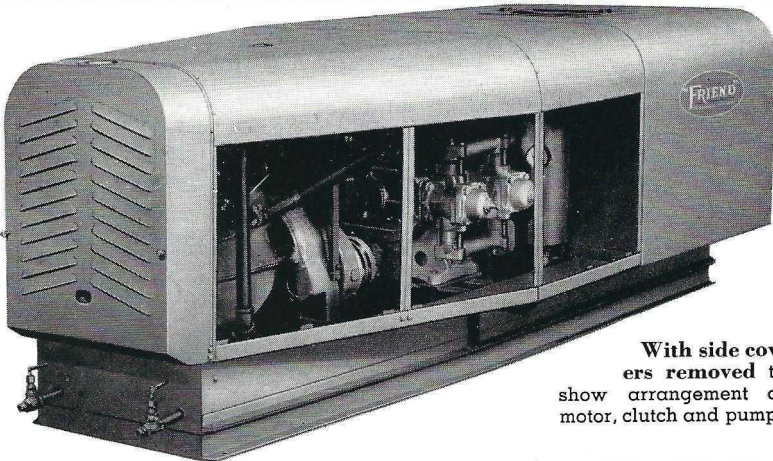
With or Without Power—we build a complete range of sizes, of both types of truck sprayers:

Engine-Driven Truck Sprayers are shown on these two pages. A motor is mounted on the same skid with the pump and tank—insuring maximum power at all times for the sprayer pump drive, and also making the truck more quickly usable for other work.

Power Take-off Truck Sprayers are shown on the following two pages, 18 and 19. This type gives you Big Capacity with the Smallest Investment—because you have nothing to buy but the pump and tank, skid mounted. No outlay for power or chassis—and you can get capacity up to 60 gal. per minute.

STREAMLINED, Engine-Driven. Photo at right shows the quadruplex "Friend" Model YX skid sprayer, with streamline cover over motor and pump, and steel tank. Clutch is standard equipment on Model YX and AXB.

15 to 60 gal. per minute pump capacities. Ready to mount on truck and start work.



With side covers removed to show arrangement of motor, clutch and pump.

Specifications, "Friend" Skid Sprayers STREAMLINED	Model NX 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model UXA 20 GPM See Page 32	Model FX 25 GPM See Page 34	Model AXB 32 GPM See Page 36	Model YX 60 GPM See Page 38
Code	NXSUM	UXSUM	UASAM	FXRAM	ARCAD	YABOS
Pressures	600 lbs.	600 lbs.	700 lbs.	700 lbs.	700 lbs.	800 lbs.
Engine	15 h.p. Wisconsin	16 h.p. Wisconsin	14 h.p. Le Roi	16 h.p. Le Roi	28 h.p. Hercules	43 h.p. Le Roi
Tank capacity	200 gal.	200 gal.	300 gal.	300 gal.	400 gal.	500 gal.
Overall length	102"	102"	124"	124"	116"	158"
Skid length	100"	100"	118"	118"	112"	152"
Overall width	37"	37"	44"	44"	50"	58"
Skid width	36"	36"	44"	44"	39"	39"
Overall height	43"	43"	43"	43"	47"	48"
Approx. shpg. wt.	1400 lbs.	1500 lbs.	1950 lbs.	2250 lbs.	2700 lbs.	3400 lbs.

Note: All models available with wood or steel tank; dimensions shown are for wood. Tanks of other capacities can be furnished—the standard sizes are given above.

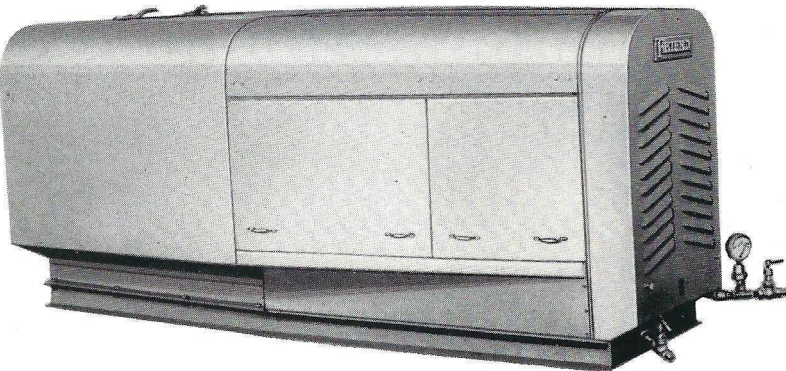


Photo at left shows the appearance of "Friend" Models NX, UX, UXA, FX and AXB Streamlined Skid Sprayers.

On all of these models, wood or steel tanks are optional, and interchangeable.

See the following 2 pages
for **Power Take-off**
Truck Sprayers

"FRIEND"

Power Take-off Skid Mounted

These Sprayers give you **Biggest Capacity for the Money Invested**

For the grower who has a truck available for spraying service, the lowest-cost equipment is the Power Take-Off type of sprayer, shown on these two pages.

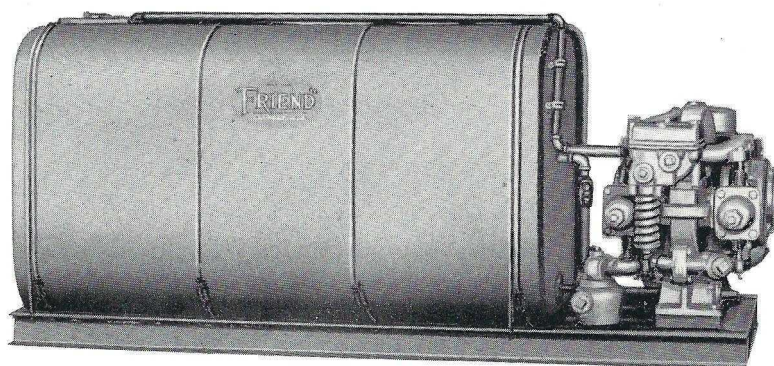
Nothing to buy but the pump and tank, skid-mounted. No outlay for power or chassis — but capacity up to 60 gal. per minute.

Note that the pump is mounted next to cab for close connections, avoiding a long drive shaft.

"Friend" Power Take-off Sprayers have direct drive to agitator, through enclosed oil bath gear reduction and flexible coupling.

One-piece steel frame, electrically welded. Wood or steel tanks optional, on open models — interchangeable. Steel tanks only on streamlined models.

Also furnished with power. See the skid mounted sprayers on Pages 16 and 17, with a motor mounted on the skid.



Shown above is a Model AXB "Friend" with the pump described on Page 36, capacity 35 gal. per minute. Specifications for this and five other sizes are given below.

WITHOUT COVERS — "Friend" Power Take-off Sprayers

Pump and tank, skid mounted for use on motor truck, operated by power taken from the truck engine. Pump is fully enclosed, dust-proof — needs no cover for protection.

Capacities 15 to 60 gal. per minute. Following are specifications for six "Friend" Power Take-off outfits, all similar in design to the skid mounted Model AXB illustrated above.

Specifications "Friend" Power Take-off Sprayers WITHOUT COVERS	Model NX 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model UXA 20 GPM See Page 32	Model FX 22 GPM See Page 34	Model AXB 35 GPM See Page 36	Model YX 60 GPM See Page 38
Code	NXKIT	UXKON	UACAC	FXKON	AXKIL	YOFAL
Tank Capacity (furnished with wood or steel tank)	300 gal.	300 gal.	300 gal.	300 gal.	400 gal.	400 gal.
Overall Length	90 in.	90 in.	90 in.	90 in.	90 in.	100 in.
Skid Length	90 in.	90 in.	90 in.	90 in.	90 in.	100 in.
Overall Width	44 in.	44 in.	44 in.	44 in.	51 in.	51 in.
Skid Width	36 in.	36 in.	36 in.	36 in.	36 in.	36 in.
Overall Height	43 in.	43 in.	43 in.	43 in.	49 in.	49 in.
Shipping Weight	1250 lbs.	1275 lbs.	1300 lbs.	1575 lbs.	1850 lbs.	2100 lbs.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

Outfits, to Spray With Truck

STREAMLINED—"Friend" Power Take-off Sprayers

With streamline covers solely to protect fruit and foliage—the quadruplex "Friend" pumps are completely enclosed and can be cleaned off with a hose.

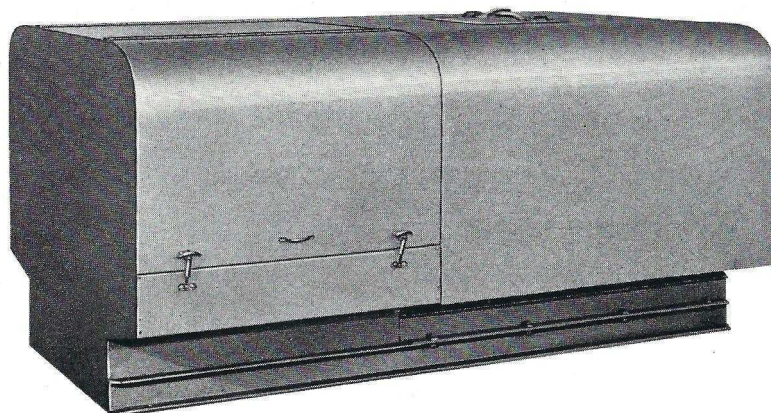
Photo at right shows the Model YX "Friend" Streamlined Power Take-off Sprayer. The three smaller models are similar in appearance.

Pump and tank, skid mounted for use on truck, operated by power from truck engine.

The UXA, FX and AXB Models include the transmission power take-off mechanism shown below, while the YX Model is arranged for split-

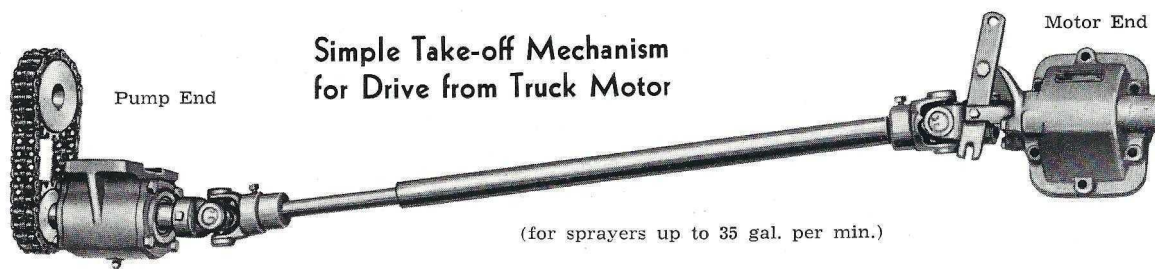
shaft take-off.

Capacities 20 to 60 gal. per minute. Following are specifications of the four sizes.



Specifications "Friend" Power Take-off Sprayers STREAMLINED	Model UXA 20 GPM See Page 32	Model FX 25 GPM See Page 34	Model AXB 35 GPM See Page 36	Model YX 60 GPM See Page 38
Code	UACOF	FXKOF	AXKOF	YODLE
Pressures	700 lbs.	800 lbs.	800 lbs.	1000 lbs.
Tank capacity	300 gal.	300 gal.	400 gal.	500 gal.
Overall length	78"	78"	90"	92"
Skid length	78"	78"	90"	92"
Overall width	44"	44"	44"	58"
Skid width	44"	44"	44"	39"
Overall height	41"	41"	41"	48"
Approx. shpg. wt.	1450 lbs.	1750 lbs.	2050 lbs.	2550 lbs.

Note:—Tanks of other capacities can be furnished — standard sizes are given above — furnished in steel only.



The above picture clearly shows—
Chain drive from the take-off pillow block bearing to pump.

Timken bearing pillow block attached directly to sprayer frame for positive alignment of chain drive.

Connecting shaft having needle bearing universal joints.

Take-off gear box mounted directly to truck transmission.

All parts oversize—extra sturdy, and thoroughly reliable. The "Friend" power take-off mechanism has been developed by years of successful use, and can be depended on for uninterrupted service.

"FRIEND"



Cutunder Sprayers, with

Originated by "Friend," this type of mounting has won a wide popularity with the grower.

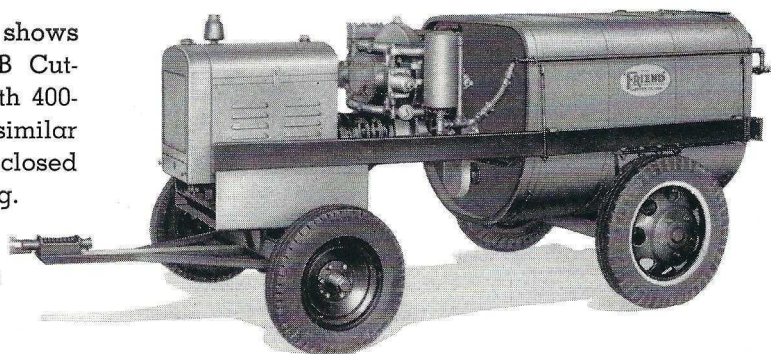
The name "Cutunder" comes from the high frame which permits the front wheels to cut clear under — so that the sprayer can be turned in its own length.

Another obvious advantage is that you have a complete sprayer, with its own power unit and wheel

mounting, always ready to give instant service whether drawn by tractor, truck or team.

WITHOUT COVERS. Photo at right shows the quadruplex "Friend" Model AXB Cutunder Sprayer, 35 gal. per minute, with 400-gal. tank. Other large models are similar in appearance, and have fully enclosed dust-proof pumps, with oil-bath gearing.

10 to 60 gal. per minute pump capacities.



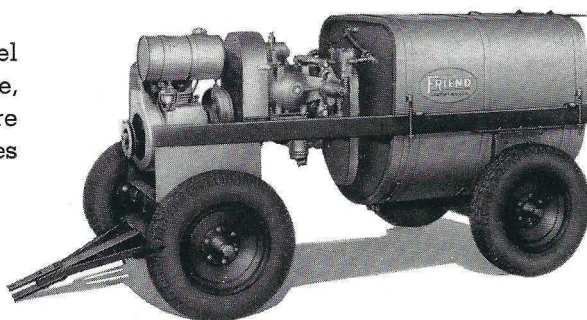
Specifications of "Friend" Cutunder Sprayers WITHOUT COVERS

are almost exactly the same as Specifications of "Friend" STREAMLINED Cutunders (See Table on Opposite Page)

The chief difference in the specifications of "Friend" Cutunder Sprayers WITHOUT COVERS is that the shipping weight runs 200 to 300 lb. less than that of the STREAMLINED Sprayer of same size.

Otherwise, the table opposite is practically correct for both types, but detailed specifications of Open-Type Cutunders will be found on pages 29 to 39, inclusive.

Photo at right shows the "Friend" Model KA Cutunder Sprayer, 12 gal. per minute, with 200-gal. tank. Other small models are similar in appearance. Tanks of other sizes can be furnished if desired.



Short-Turning 4-Wheel Trucks

Electrically-welded one piece steel frame, without a bolt or rivet to work loose (another feature introduced by Friend in the construction of sprayers) carries the weight of the tank as well as of the engine and pump. No load-carrying strain whatever is transmitted to the tank.

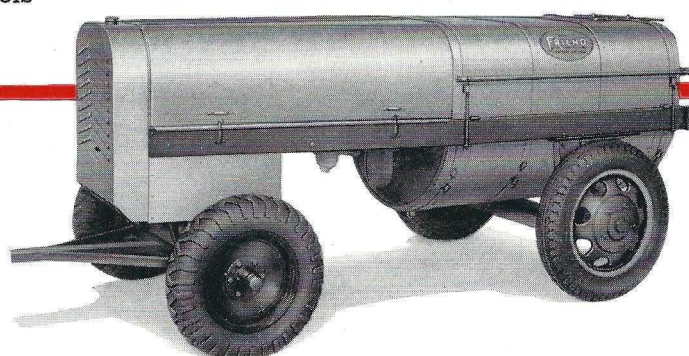
Direct drive from engine to pump, on all models for which suitable power units are obtainable.

Timken roller bearing wheels, with the rear axle adjustable up or down to accommodate various wheel sizes.

The Simplest Pump built for high-pressure spraying—which is the most important advantage of any "Friend" sprayer, regardless of the type of mounting.

STREAMLINED. Photo at right shows the "Friend" Streamlined Cutunder sprayers of 300 to 500 gallon tank capacity (See table below).

Up to 60 gal. per minute pump capacities.



Specifications, "Friend" Cutunder Sprayers STREAMLINED	Model KA 12 GPM See Page 28	Model NX 15 GPM See Page 30	Model UXA 20 GPM See Page 32	Model FX 25 GPM See Page 34	Model AXB 35 GPM See Page 36	Model YX 60 GPM See Page 38
Code (Streamlined)	STEVE	NXRW	UARW	FXRW	ABRW	YXRUF
Pressures	400 lbs.	600 lbs.	700 lbs.	700 lbs.	700 lbs.	800 lbs.
Engine	5 h.p. Wisconsin	15 h.p. Wisconsin	14 h.p. Le Roi	16 h.p. Le Roi	28 h.p. Hercules	43 h.p. Le Roi
Tank capacity	200 gal.	200 gal.	300 gal.	300 gal.	400 gal.	400 gal.
Overall length	102"	102"	124"	124"	128"	155"
Overall width	58"	58"	69"	69"	75"	87"
Overall height	52"	52"	55"	55"	60"	65"
Tread	50"	50"	57"	57"	63"	64"
Wheels	4.00" x 16" D.C. front & rear	4.00" x 16" D.C. front & rear	4.00" x 16" D.C. front 5"x20" F. B. rear	4.00" x 16" D.C. front 5"x20" F. B. rear	4.00" x 16" D.C. front 5"x20" F. B. rear	4.00" x 16" D.C. front dual 5"x20" rear
Ground Clearance Using pneu. tires	9" 5.00" x 16" front 6.00" x 16" rear	9" 5.00" x 16" front 6.00" x 16" rear	11" 6.00" x 16" front 6.00" x 20" rear	11" 6.00" x 16" front 6.00" x 20" rear	11" 6.00" x 16" front 6.00" x 20" rear	11" 6.00" x 16" front 6.00" x 20" rear
Approx. shpg. wt.	1800 lbs.	1900 lbs.	2850 lbs.	3150 lbs.	3450 lbs.	5200 lbs.
Steel wheels	26" x 5" front 48" x 6" rear	26" x 5" front 48" x 6" rear	26" x 5" front 48" x 6" rear	26" x 5" front 48" x 6" rear	28" x 6" front 54" x 8" rear	28" x 6" front 54" x 8" rear

Note: Other rim sizes available on UXA, FX and AXB models; dual 5 x 20 in. F. B. or 8 x 24 in. D. C. or 6 x 36 in. D. C. in rear. Tanks of other capacities can be furnished—the standard sizes are given above.

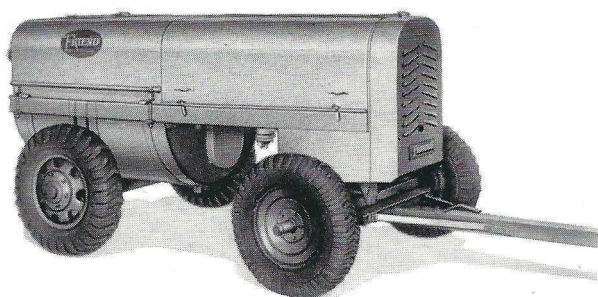


Photo at left shows the "Friend" Streamlined Cutunder Sprayers of 200 gallon tank capacity.

As all "Friend" Cutunder models except the KA have fully-enclosed dustproof pumps, the streamline covers are used for the protection of fruit and foliage, and neater appearance.

Steel or Wood Tanks—interchangeable on all "Friend" Streamlined Cutunders.

"FRIEND"

Combination Sprayers—for

All-Around Usefulness for Trees and Field Crops— Medium Capacity

For the grower who has orchards as well as row-crops — and not too big an acreage — the combination outfits on these pages are unbeatable.

They are designed to operate either nozzle booms or orchard spray guns, each having a handy connection for quick attachment of one or more guns.

Capacities as illustrated range from 6 to 20 gallons a minute, at 400 to 700 lb. pressure. Larger capacities are available. Write for details.

Always ready for immediate service — as each of these outfits is furnished complete with gasoline engine, mounted on tank with the pump. (Booms are bought separately.)

The pump and engine are located to maintain perfect balance, whether the tank is

fully loaded, half full, or empty.

As popular as ever. Thousands of growers would not own any other type of sprayer but a combination—and in some sections of the country you see almost no other sprayers in use but combination "Friends."

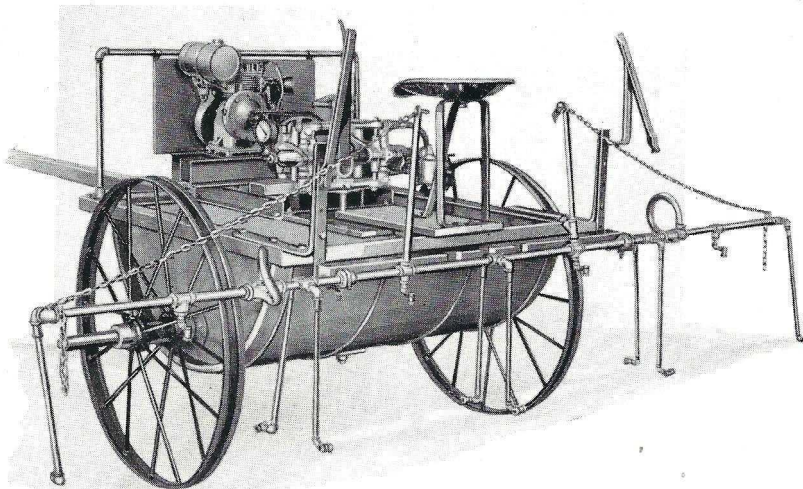
Model K "Friend" Combination

6 Gal. per minute — 400 lb. pressure

A splendidly built high-pressure outfit for the grower with a variety of crops, but limited acreage.

It's a one-gun machine for orchard work, with capacity for a 4-row 8-nozzle boom on row-crop spraying.

Duplex Pump is the "Friend" Model K shown on Page 26.

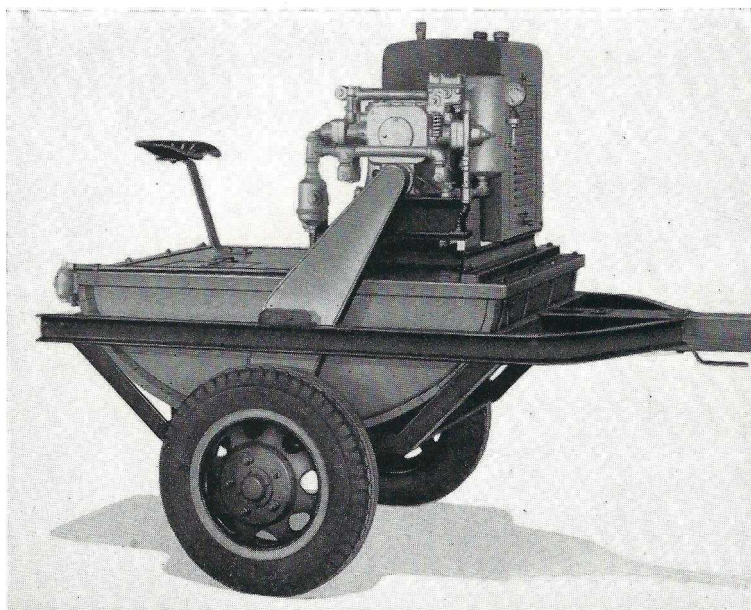


CodeDAKUD
Tank capacity150 gal.
Length58 in.
Overall width of tank.....51¼ in.
Axle 86 in. long, 2½ in.
diameter.
Height to top of tank.....38 in.
Tread, adjustable from 60 to
72 in.
Ground clearance15 in.
Wheels: 48 in. dia., 5 in. tires
(Also available with 6 x 36 in.
DC rims, for rubber)
Shipping weight.....1400 lbs.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

Row-Crops and Orchard



"Friend" Model NX Combination Sprayers

12 Gal. per minute
at 400 lb. pressure
(or 15 gal. at 600 lb.)

In every detail, this is the finest "Friend" combination sprayer ever built in the 10 to 15-gallon-per-minute class.

The pump is the completely enclosed duplex "Friend" NX, shown on Page 30—which can be furnished either with 8 H. P. or 15 H. P. engine.

The 8 H. P. NX Combination operates one or two orchard guns at 400 lb. pressure. On row-crop spraying, a 4-row 12-nozzle boom. With the 15 H. P. engine, the NX Combination delivers 25 per cent more volume, at higher pressure (see table below).

Larger Combinations: "Friend" Model UX and UXA

16 Gal. per minute at 600 lb. pressure (or 20 gal. at 700 lb.)

These high-pressure combination outfits have the "Friend" UX pump (and UXA), shown on Page 32.

With a UX Combination, you have ample capacity for two high-pressure guns on orchard spraying; for row-crop work, operates a 6-row 18-nozzle boom.

The UXA gives 25 per cent more volume, at higher pressure.

Specifications	Model NX-12 12 GPM See Page 30	Model NX-15 15 GPM See Page 30	Model UX 16 GPM See Page 32	Model UXA 20 GPM See Page 32
Code	NXKOM	NXKOB	UXKOB	UAKOB
Capacity	12 gal. per min.	15 gal. per min.	16 gal. per min.	20 gal. per min.
Pressure	400 lbs.	600 lbs.	600 lbs.	700 lbs.
Engine	1 Cyl. Wisconsin 8 H. P.	4 Cyl. Wisconsin 15 H. P.	4 Cyl. Wisconsin 15 H. P.	4 Cyl. Le Roi 12 H. P.
Tank capacity	150 gal.	200 gal.	200 gal.	200 gal.
Overall length	101"	101"	101"	101"
Overall width of tank	50"	50"	50"	50"
Height to top of tank	42"	47"	47"	47"
Overall height	73"	83"	83"	84"
Tread adjustable from	60 to 72"	60 to 72"	60 to 72"	60 to 72"
Ground clearance (6.00-20" tires)	16"	16"	16"	16"
Wheels	20-5.00" flat base rims	20-5.00" flat base rims	20-5.00" flat base rims	20-5.00" flat base rims
Shipping weight	1600 lbs.	1800 lbs.	1850 lbs.	2100 lbs.

"FRIEND"

Chassis Styles to meet

The "Friend" line includes all good types

In addition to the sprayers shown on Pages 10 to 23, we build the four types shown here, which fit the requirements of thousands of growers who have medium or small acreage.

Stationary spray systems, which are mostly used by large orchardists, sometimes prove economical for smaller orchards also.

Every "Friend" is built to the same high standard. Even the smallest and least expensive of these machines, the "Friend" 4¼-gal. Traction Sprayer, is as carefully designed and sturdily constructed as the largest Cutunder or Truck Sprayer in the "Friend" line.

We have only one standard of quality — because we know that the grower with a small acreage has just the same need as his neighbor for a *thoroughly dependable* sprayer.

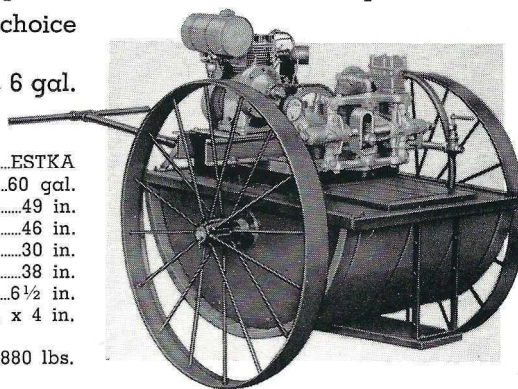
Estate Sprayer

A complete spraying machine, with power—but so compact that it can be drawn by hand.

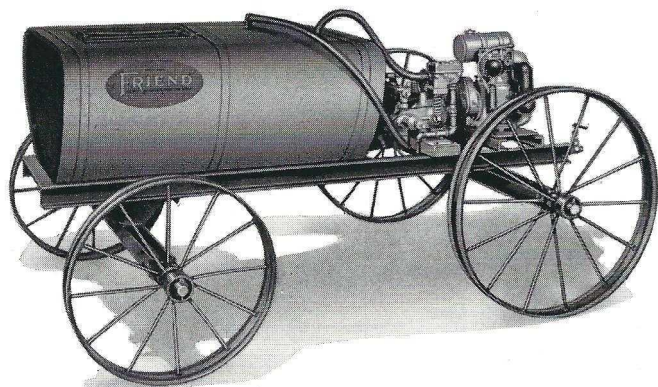
Highly favored for club grounds and estates, it is also the choice of many small commercial growers.

Photo at right shows the "Friend" Model K Estate Sprayer, 6 gal. per minute capacity. Specifications:

Code	ESTKA
Tank capacity	60 gal.
Length	49 in.
Overall width (wheel hubs).....	46 in.
Height to top of tank.....	30 in.
Tread	38 in.
Ground clearance	6½ in.
Wheels	42 in. x 4 in.
(Also available with 36 in. rims for 4.00 in. x 36 in. tires.)	
Shipping weight	880 lbs.



Lowdown Truck Sprayer



This is a very convenient 4-wheel mounting at a low price. A complete sprayer, with power—always ready to spray.

Photo at left shows the "Friend" Model K Lowdown Truck Sprayer, 6 gal. per minute capacity.

Specifications of this sprayer will be found on Page 37.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

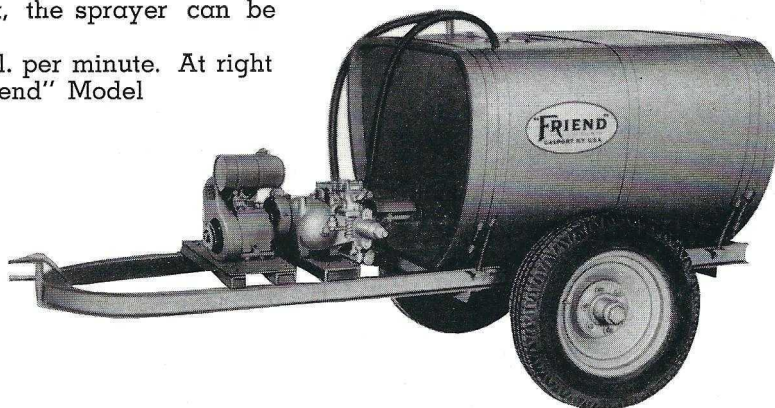
Every Grower's Needs

Engine Driven Trailer

For spraying with a tractor, where the gallonage to be applied is moderate, this type of sprayer is often best suited. No power hook-up is necessary—and if the tractor is busy on other work, the sprayer can be drawn by truck.

Built in two capacities, 6 and 10 gal. per minute. At right is shown the 10 gal. per minute "Friend" Model KA Engine Driven Trailer.

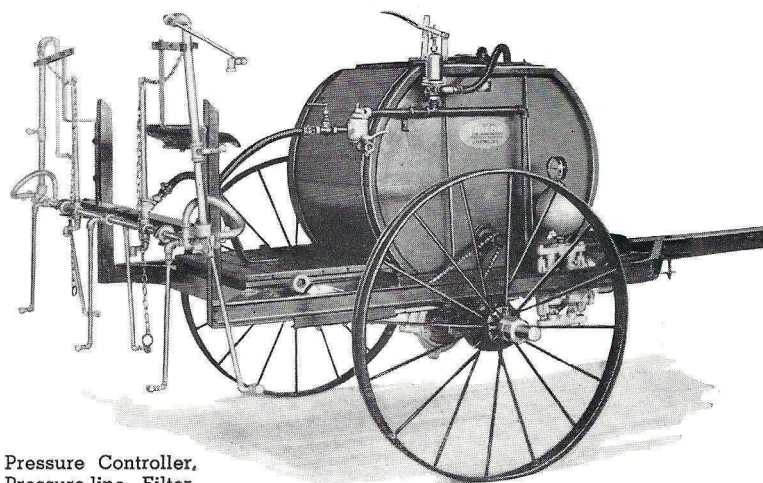
Specifications:	Model K	Model KA
	6 Gal.	10 Gal.
	per Min.	per Min.
	See Page 36	See Page 38
Code	SURIG	STRIG
Tank capacity	150 gal.	200 gal.
Overall length	107 in.	107 in.
Overall width	58 in.	58 in.
Overall height	41 in.	49 in.
Tread	50 in.	50 in.
Ground clearance.....	11 in.	11 in.
Wheels.....	4.00 x 16 in. drop center rims	
Shipping weight	1100 lbs.	1500 lbs.



Traction Sprayer

A quality-built sprayer with the pump driven through an eccentric connected to the axle shaft. Usually drawn by team.

All-welded steel construction—nothing to work loose. Rigid one-piece steel frame.



Pressure Controller,
Pressure-line Filter,
Propeller Agitator,
Boom Extra.

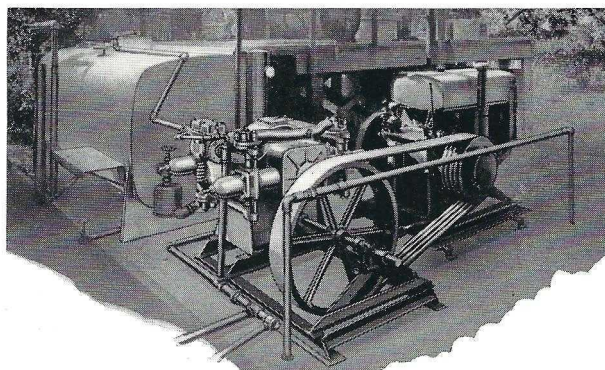
	Model GHS	Model GFS
Code	TRAGY	TRGFS
Pressure	250-300 lb.	300-350 lb.
G P M.....	4 1/4	7
Tank capacity	100 gal.	100 gal.
Length	78 in.	97 in.
Width of tank.....	29 3/4 in.	28 in.
Width of frame.....	42 in.	49 in.
Height to top of tank...	59 1/2 in.	59 in.
Tread	54 in.-72 in.	60 in.-72 in.
	adjustable	adjustable
Ground clearance	23 in.	20 in.
Wheels	48 in. dia. steel,	42 in. dia. steel,
	3 1/2 in. tires	3 1/2 in. tires
(Also with rims to take 4.00-36 rubber tires)		
Shipping weight	1150 lbs.	1300 lbs.

Stationary Spray Plants

By laying piping systems in their orchards, many large growers have been able to cut their spraying time to a minimum. Some stationary systems permit the coverage of 3 or more acres of orchard per hour, delivering ample volume for as many as 10 guns.

Stationary systems have also cut spraying time and costs in orchards as small as 10 acres; especially valuable in hilly orchards.

If you are interested in a stationary spray system, we will gladly give further information.



"FRIEND"

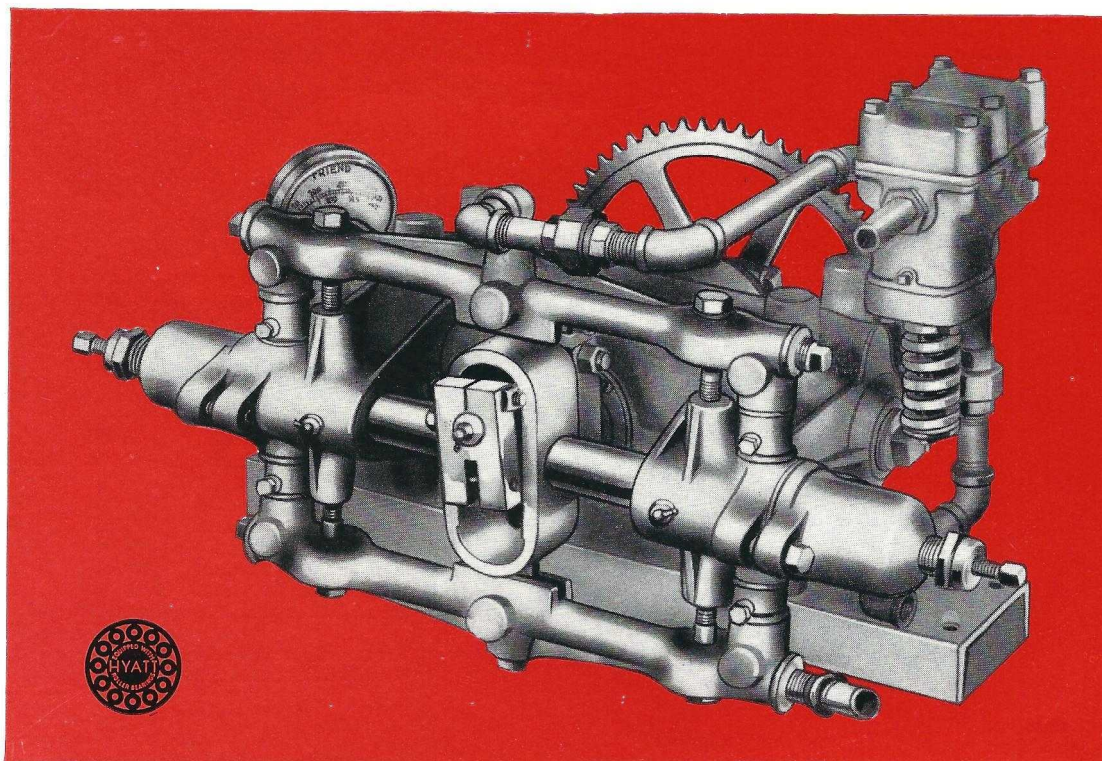
"Friend" Model K-6 gal.

Duplex Pump: Displacement type, with no contact or wear on the cylinder walls.

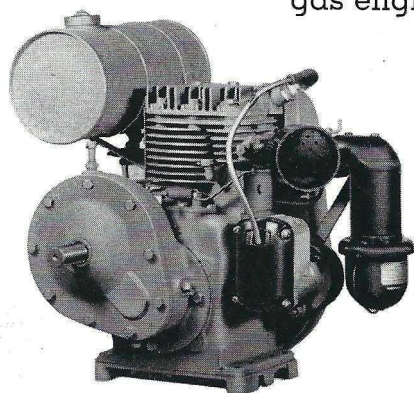
Bore1½ in.
 Stroke2¾ in.
 Normal speed.....146 R.P.M.
 BearingsHyatt
 Lubrication Alemite

Equipment: "Friend" automatic pressure controller, and tools.

Overall length.....15 in.
 Width 30 in.
 Height15½ in.
 Weight170 lbs.



Motor-Pump: K pump as above, with single cylinder Wisconsin gas engine shown below:



Horsepower 2½
 Bore2½ in.
 Stroke2¾ in.

Dimensions of combined motor-pump unit:

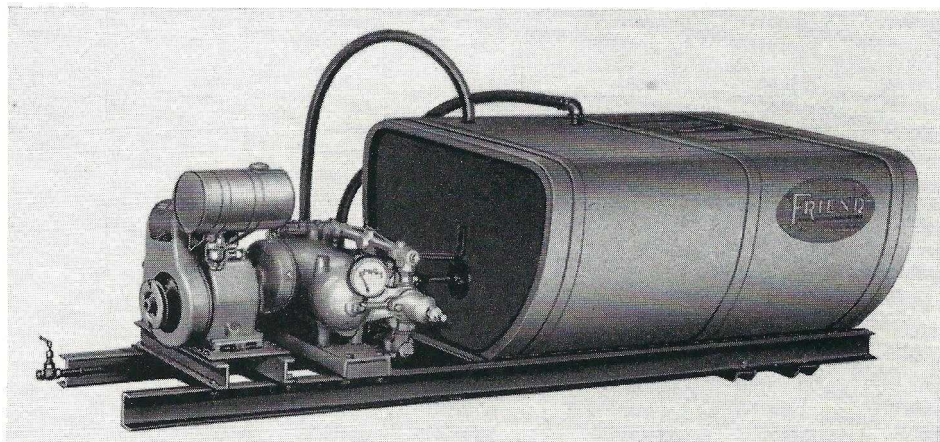
Overall length30 in.
 Width31 in.
 Height24 in.
 Weight450 lbs.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

per min.-400 lb. pressure

Standard Styles — MODEL K "FRIEND"



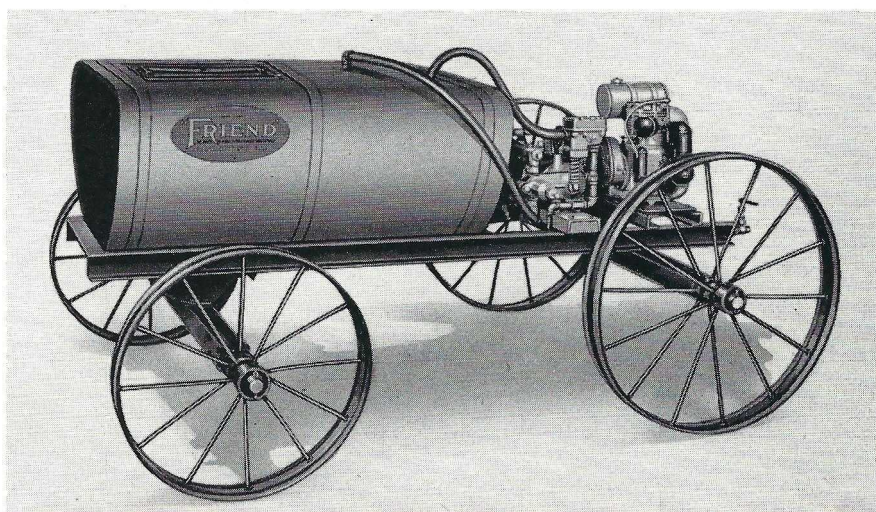
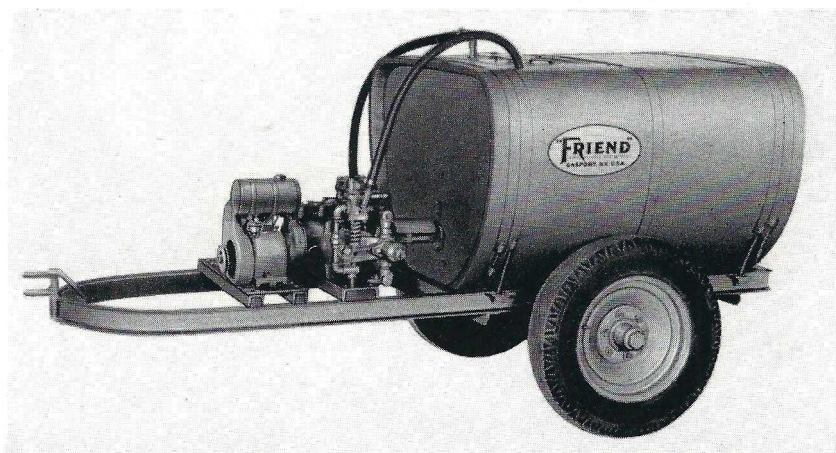
Skid Style, for mounting
on wagon or truck.

CodeSURGE
Tank capacity.....100 gal.
Length90 in.
Overall width
(tank)38 in.
Height to top
of tank26 in.
Shpg. wt.830 lbs.

Engine Driven Trailer

CodeSURIG
Tank capacity150 gal.
Overall length107 in.
Overall width58 in.
Overall height41 in.
Tread50 in.
Ground clearance11 in.
 With 6.00-16 in. tires
 Wheels 4.00 x 16 in. drop center
 rims
Shipping weight1100 lbs.

Tanks of other capacities can be
furnished — the standard tank sizes
are given above.



Low down truck style

CodeSURA
Tank capacity100 gal.
Length90 in.
Overall width67 in.
Height to top of tank.....45 in.
Tread56½ in.
Ground clearance13 in.
Wheels.....28 in. front,
 36 in. rear, 4 in. tires
Shipping weight.....1170 lbs.

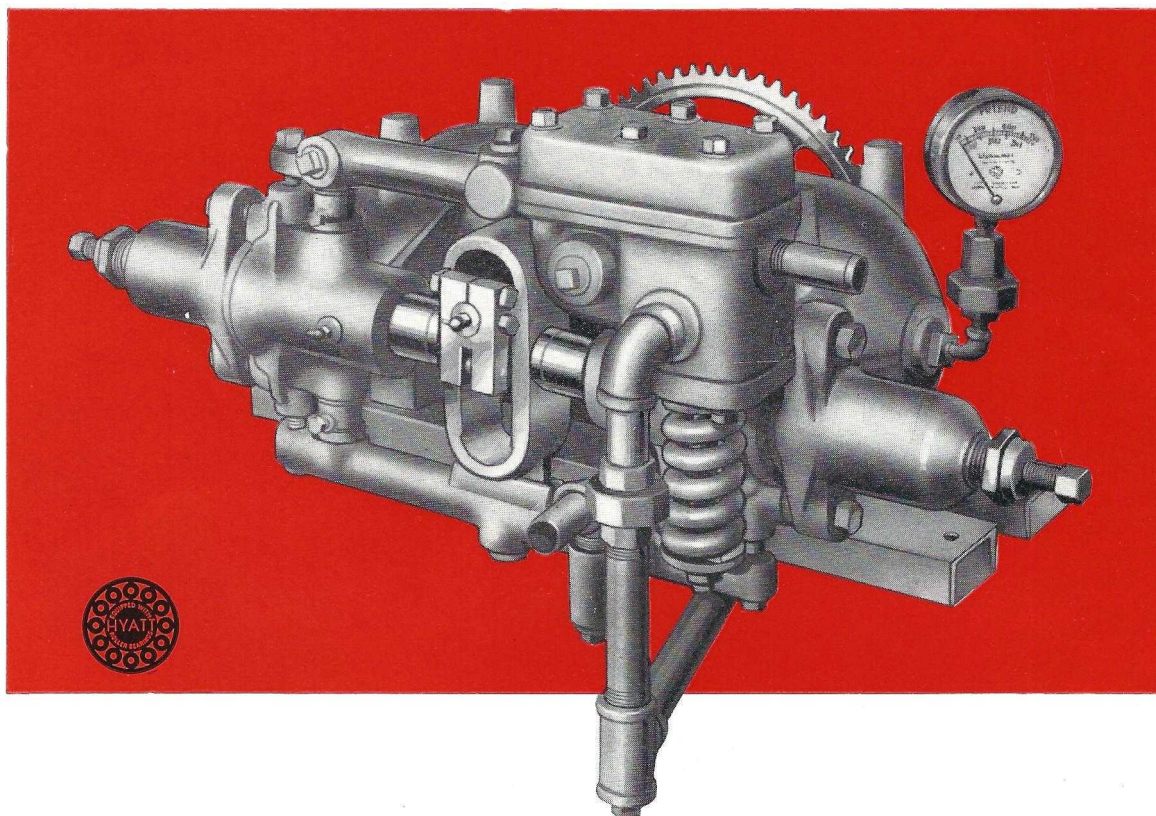
The K Combination outfit, for
row-crop and orchard spraying,
is shown with other row-crop
machines, on Page 22.

"FRIEND"

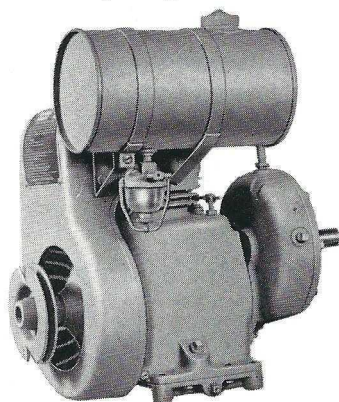
"Friend" Model KA-12 gal.

Duplex Pump: Displacement type, with no contact or wear on the cylinder walls
 Bore 2 in.
 Stroke 3 in.
 Normal speed 123 R.P.M.
 Bearings Hyatt
 Lubrication Alemite

Equipment: "Friend" automatic pressure controller, and tools.
 Overall length 18 in.
 Width 35 in.
 Height 13 in.
 Weight 250 lbs.



Motor-Pump, KA pump as above, with either a 5 H.P. single-cylinder Wisconsin gas engine to deliver 12 gal. per minute, or a 4 H.P. engine to deliver 10 gal. per minute.



To deliver 12 gal. per minute
 5 H.P. single cylinder
 Wisconsin gas engine
 Horsepower 5
 Bore 3 in.
 Stroke 3 1/4 in.

To deliver 10 gal. per minute
 4 H.P. single-cylinder Wisconsin
 gasoline engine (similar in ap-
 pearance to the 5 H.P. engine
 shown at left).
 Horsepower 4
 Bore 2 7/8 in.
 Stroke 2 3/4 in.

Dimensions of combined 12 GPM
 motor-pump unit:
 Overall length 35 in.
 Width 35 in.
 Height 24 in.
 Weight 650 lbs.

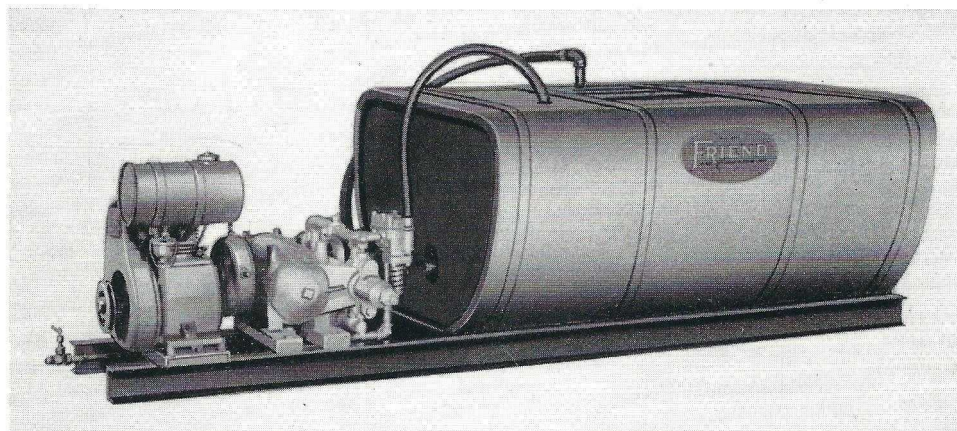
Dimensions of combined 10 GPM
 motor-pump unit:
 Overall length 30 in.
 Width 35 in.
 Height 25 in.
 Weight 550 lbs.

per min. - 400 lb. pressure

Standard Styles — MODEL KA "FRIEND"

Skid Style, (right) for mounting on wagon or truck.

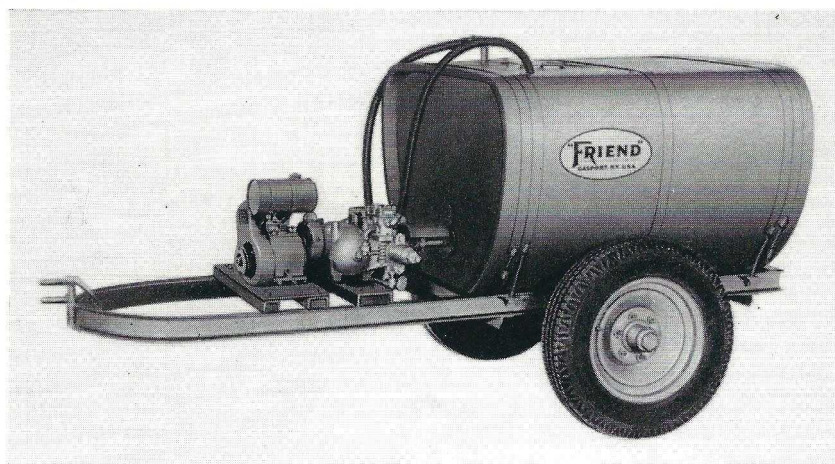
Code STORE
Tank capacity.....200 gal.
Length108 in.
Overall width (tank).....44 in.
Height to top
of tank28 in.
Shipping weight1325 lbs.



Engine Driven Trailer
(at right)

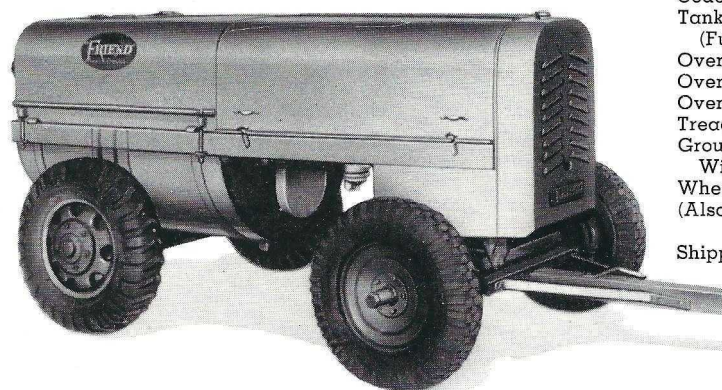
CodeSTRIG
Tank capacity.....200 gal.
Overall length107 in.
Overall width58 in.
Overall height49 in.
Tread50 in.
Ground clearance11 in.
with 6.00-16 in. tires.
Wheels, 4.00 x 16 in. drop
center rims

Shipping weight.....1500 lbs.
Tanks of other capacities
can be furnished — the
standard tank sizes are
given.

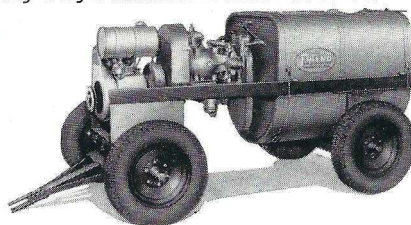


Cutunder Style, Streamlined

CodeSTEVE
Tank capacity200 gal.
(Furnished with wood or steel tank.)
Overall length102 in.
Overall width58 in.
Overall height52 in.
Tread50 in.
Ground clearance9 in.
With pneumatic tires 5.00 x 16 in. front, 6.00 x 16 in. rear.
Wheels.....4.00 x 16 in. D.C. front and rear
(Also available with 26 in. x 5 in. front, 48 in. x 6 in. rear,
Timken bearing steel wheels.)
Shipping weight1800 lbs.



Open Type Cutunder Style: Code STORM; Shipping weight 1700 lbs. Other specifications same as for Streamlined Cutunder, above.



"FRIEND"

"Friend" Model NX-15 gal.

Operating pressure up to 700 lbs. (depending on power used)

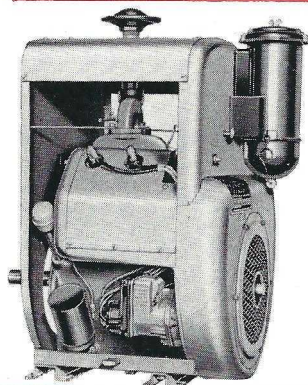
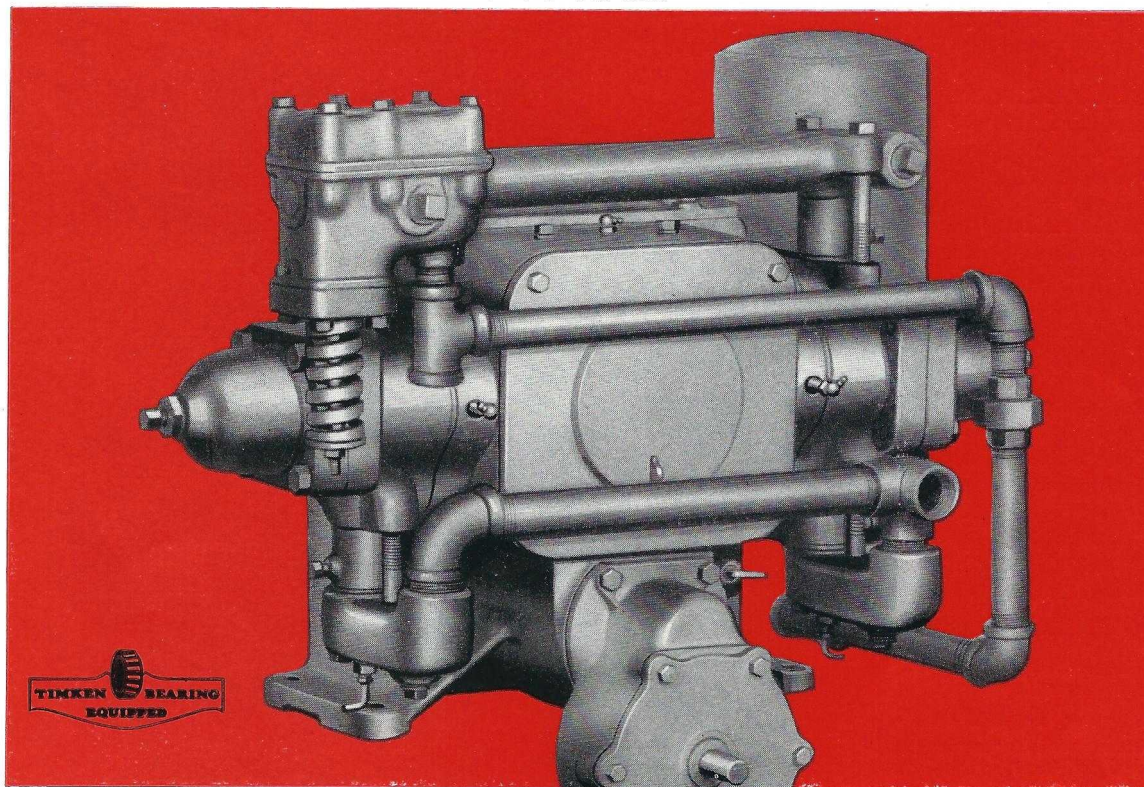
Duplex Pump: Displacement type, with no contact or wear on cylinder walls.

Fully enclosed—dust proof.

Bore 2 in.
Stroke 3 in.
Normal speed 184 R.P.M.
Bearings Timken

Standard gear ratio 4.53—1
Tractor drive gear ratio 2.62—1
Lubrication Oil bath gearing
Equipment — "Friend" Automatic Pressure Controller and tools.

Overall length 19 in.
Width 29¼ in.
Height 22½ in.
Weight 275 lbs.

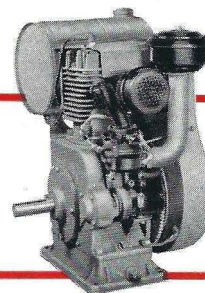


Motor-Pump: NX Pump as above, with 4-cylinder, 15 h.p. Wisconsin gasoline engine shown at left. Capacity of Motor-Pump unit, 15 gal. per minute at 600 lb. pressure.

Horsepower 15
Bore 3 in.
Stroke 3¼ in.

Dimensions of combined motor-pump unit:

Overall length 44 in.
Width 29 in.
Height 33 in.
Weight 900 lbs.



To Deliver 12 gal. per minute at 400 lb. pressure

NX Pump with 1-cylinder, 8 h. p. Wisconsin gasoline engine shown at right.

Horsepower 8
Bore 3⅞ in.
Stroke 4 in.

Dimensions of combined motor-pump unit:

Overall length 34 in.
Width 29 in.
Height 33 in.
Weight 725 lbs.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

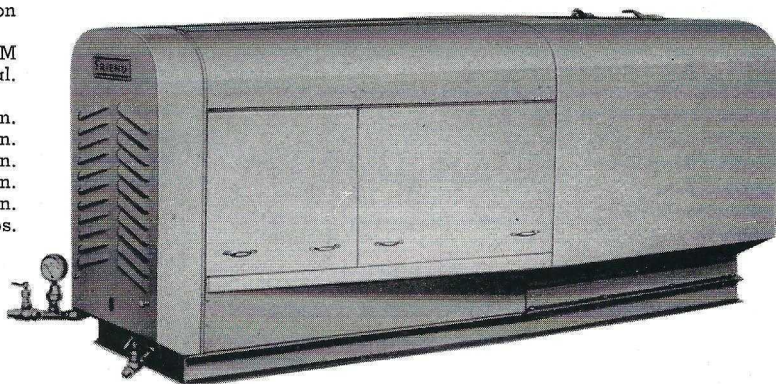
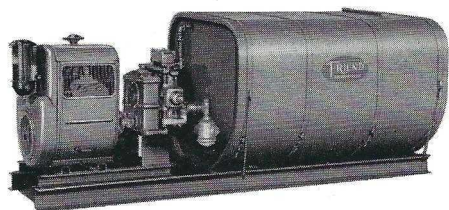
per minute - 600 lb. pressure

Standard Styles - MODEL NX "FRIEND"

Skid style, Streamlined, for mounting on wagon or truck.

CodeNXSUM
Tank capacity200 gal.
(Furnished with wood or steel tank.)

Overall length102 in.
Skid length100 in.
Overall width37½ in.
Skid width36 in.
Overall height43 in.
Shipping weight1400 lbs.



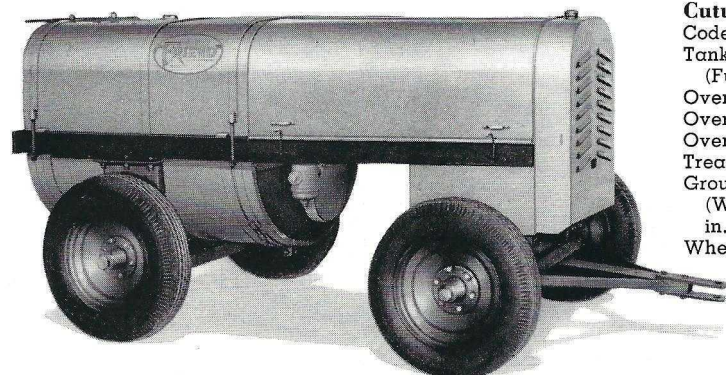
Open Type Skid Style: Code NXSER; Tank capacity 200 gal.; Overall length 100 in.; Skid length 94 in.; Overall width 37½ in.; Skid width 33 in.; Overall height 43 in.; Shipping weight 1300 lbs.

Cutunder Style, Streamlined

CodeNXRUW
Tank capacity200 gal.
(Furnished with wood or steel tank.)

Overall length102 in.
Overall width58 in.
Overall height52 in.
Tread50 in.
Ground clearance9 in.
(With pneumatic tires 5.00 x 16 in. front and 6.00 x 16 in. rear.)

Wheels: 4.00 x 16 in. D. C. front and rear.
(Also available with 26 x 5 in. front, 48 x 6 in. rear, Timken bearing steel wheels.)
Shipping weight1900 lbs.



Open Type Cutunder Style: Code NXRUF; Shipping weight 1800 lbs.; Other specifications same as for Streamlined Cutunder, above.

Tractor-Trailer, Streamlined

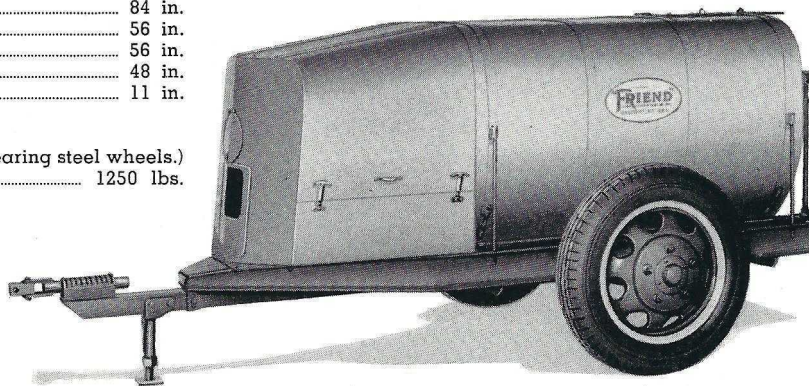
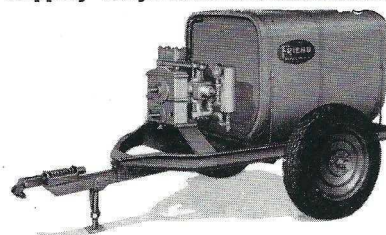
CodeStreamlined NXTUB
Tank capacity200 gal.
(Furnished with wood or steel tank.)

Overall length84 in.
Overall width56 in.
Overall height56 in.
Tread48 in.
Ground clearance11 in.

(With pneumatic tires, 6.00 x 16 in.)

Wheels: 4.00 x 16 in. D.C.

(Also available with 48 x 6 in. Timken bearing steel wheels.)
Shipping weight1250 lbs.



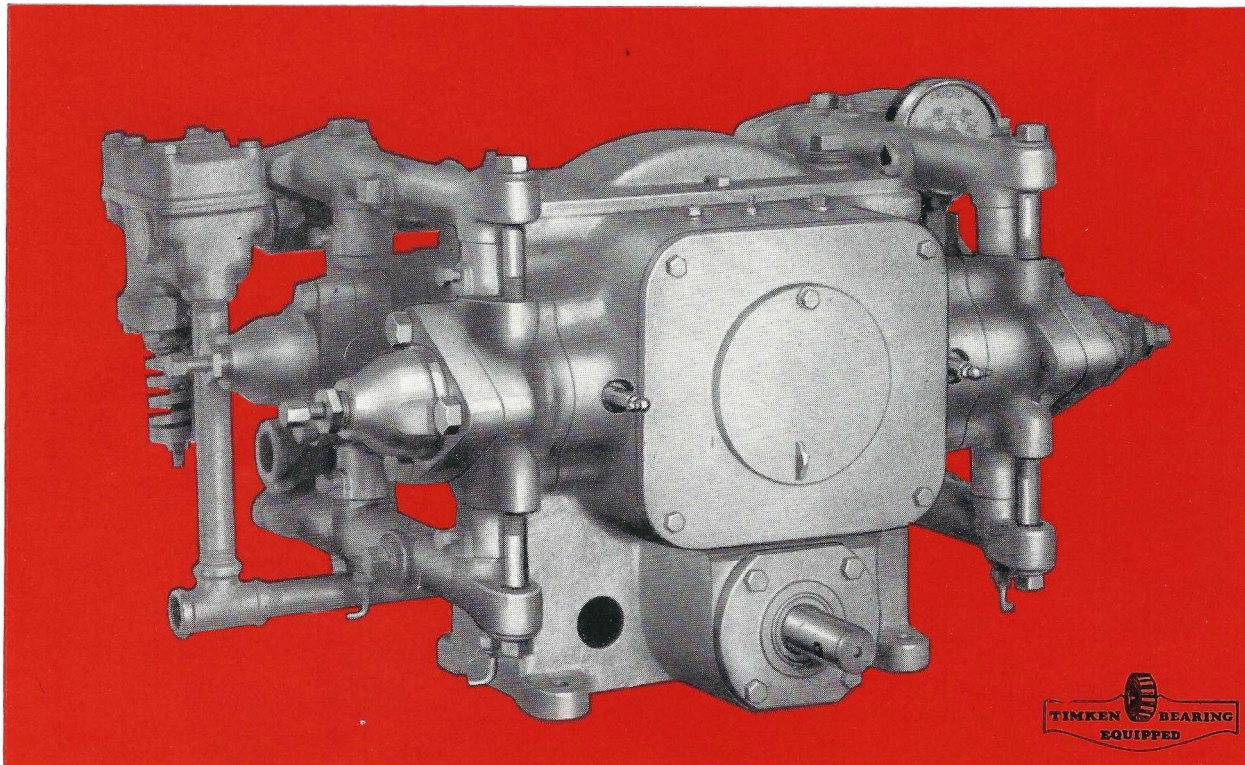
Open Type Tractor-Trailer Style: Code, NXTUB. Shipping weight 1150 lbs.; Other specifications same as for Streamlined Tractor-Trailer, above.

"FRIEND"

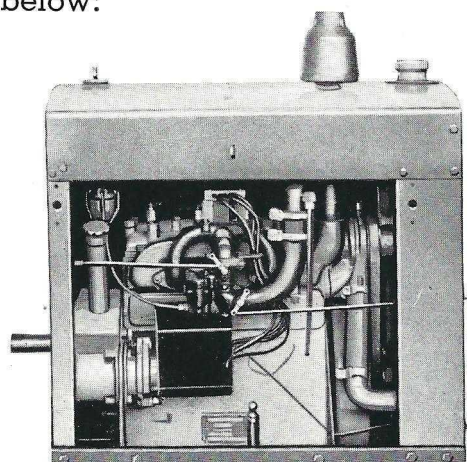
"Friend" Model UXA-20 gal.

Quadruplex Pump: Displacement type, with no contact or wear on the cylinder walls. Fully enclosed—dustproof.

Bore	1¾ in.	Equipment: "Friend" automatic pressure control-	
Stroke	3 in.	ler and tools.	
Normal speed	160 R.P.M.	Overall length	21¼ in.
Bearings	Timken	Width	30 in.
Standard gear ratio	4.52—1	Height	20 in.
Tractor drive gear ratio	2.62—1	Weight	320 lbs.
Lubrication.....	Oil bath gearing		



Motor-Pump, UXA Pump as above, with 4-cylinder LeRoi gasoline engine shown below:



Horsepower	12
Bore	2⅞ in.
Stroke	3½ in.
Dimensions of combined motor-pump unit:	
Overall length	56 in.
Width	30 in.
Height	35 in.
Weight	1040 lbs.

Model UX—16 gal. per min. at 600 lb. pressure

Above pump is also made to give 16 gal. per minute at 600 lb. pressure, equipped with the 4-cylinder Wisconsin engine illustrated on page 30. This model is known as UX. Pump specifications are same as above, except for the following:

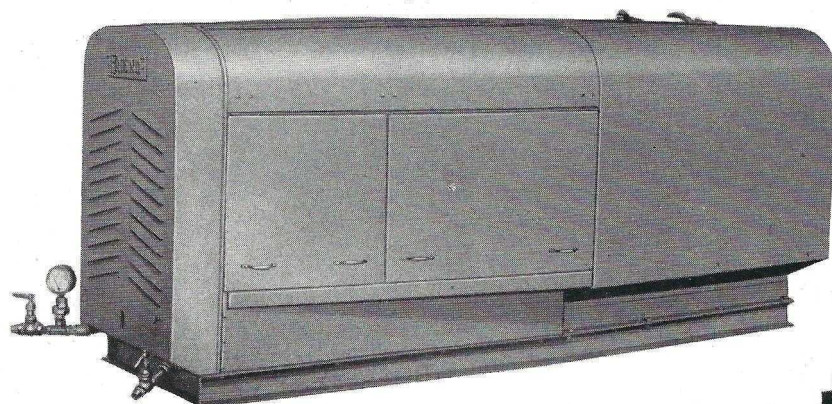
Bore—1½ in. Normal speed—175 R.P.M.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

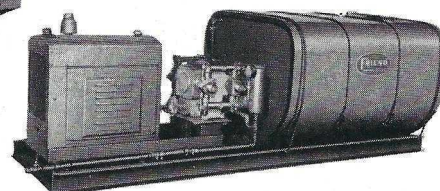
per minute-700 lb. pressure

Standard Styles — MODEL UXA "FRIEND"



Skid Style, Streamlined, for mounting on wagon or truck.

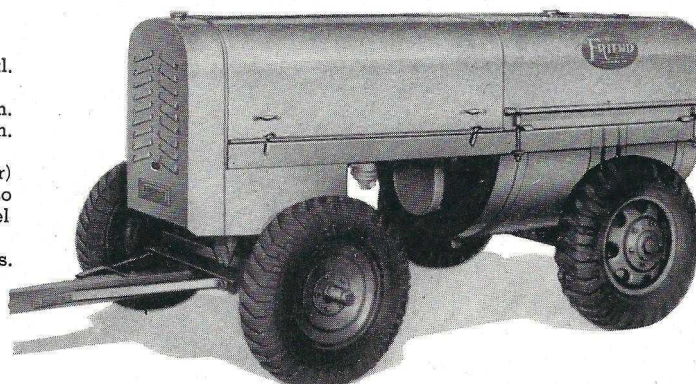
Code UASAM
 Tank capacity 300 gal.
 (Furnished with wood or steel tank)
 Overall length 124 in.
 Skid length 118 in.
 Overall width 44 in.
 Skid width 44 in.
 Overall height 43 in.
 Shipping weight 1950 lbs.



Open Type Skid Style: Code UASON; Tank capacity 300 gal. Overall length 122½ in.; Skid length 122½ in.; Overall width 44 in.; Skid width 33 in.; Overall height 42½ in.; Shipping weight 1800 lbs.

Cutunder Style, Streamlined

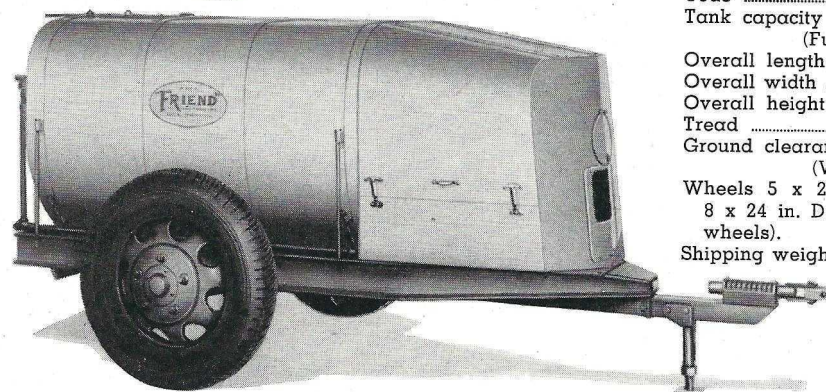
Code UARUW Tank capacity 300 gal.
 (Furnished with wood or steel tank)
 Overall length 124 in. Overall height 55 in.
 Overall width 69 in. Tread 57 in.
 Ground clearance 11 in.
 (With pneumatic tires 6.00-16 in. front, and 6.00-20 in. rear)
 Wheels: 4.00 x 16 in. D.C. front, 5 x 20 in. F.B. rear. Also
 available with duals in rear, or Timken bearing steel
 wheels 26 x 5 in. front, 48 x 6 in. rear.
 Shipping weight 2850 lbs.



Open Type Cutunder Style: Code UARUF; Overall length 122 in.; Shipping weight 2700 lbs. Other specifications same as for Streamlined Cutunder, above.

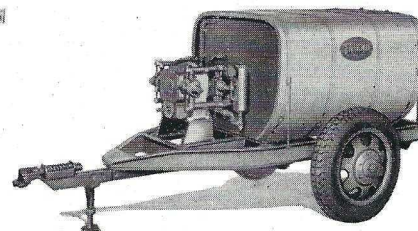
Tractor-Trailer, Streamlined

Code Streamlined UATON
 Tank capacity 300 gal.
 (Furnished with wood or steel tank)
 Overall length 102 in.
 Overall width 70 in.
 Overall height 59 in.
 Tread 58 in.
 Ground clearance 14 in.
 (With pneumatic tires, 6.00-20 in.)
 Wheels 5 x 20 in. F.B. (Also available with duals, or
 8 x 24 in. D.C. rims, or 48 x 8 in. Timken bearing steel
 wheels).
 Shipping weight 1900 lbs.



Open Type Tractor-Trailer Style: Code, UATON. Shipping weight 1800 lbs.

Other specifications same as for Streamlined Tractor-Trailer, above.
 Tanks of other capacities can be furnished—
 the standard tank sizes are given.



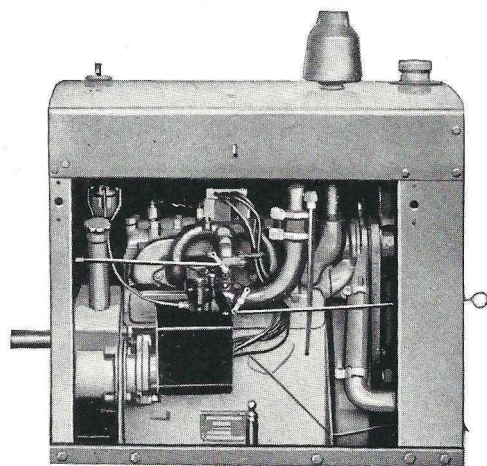
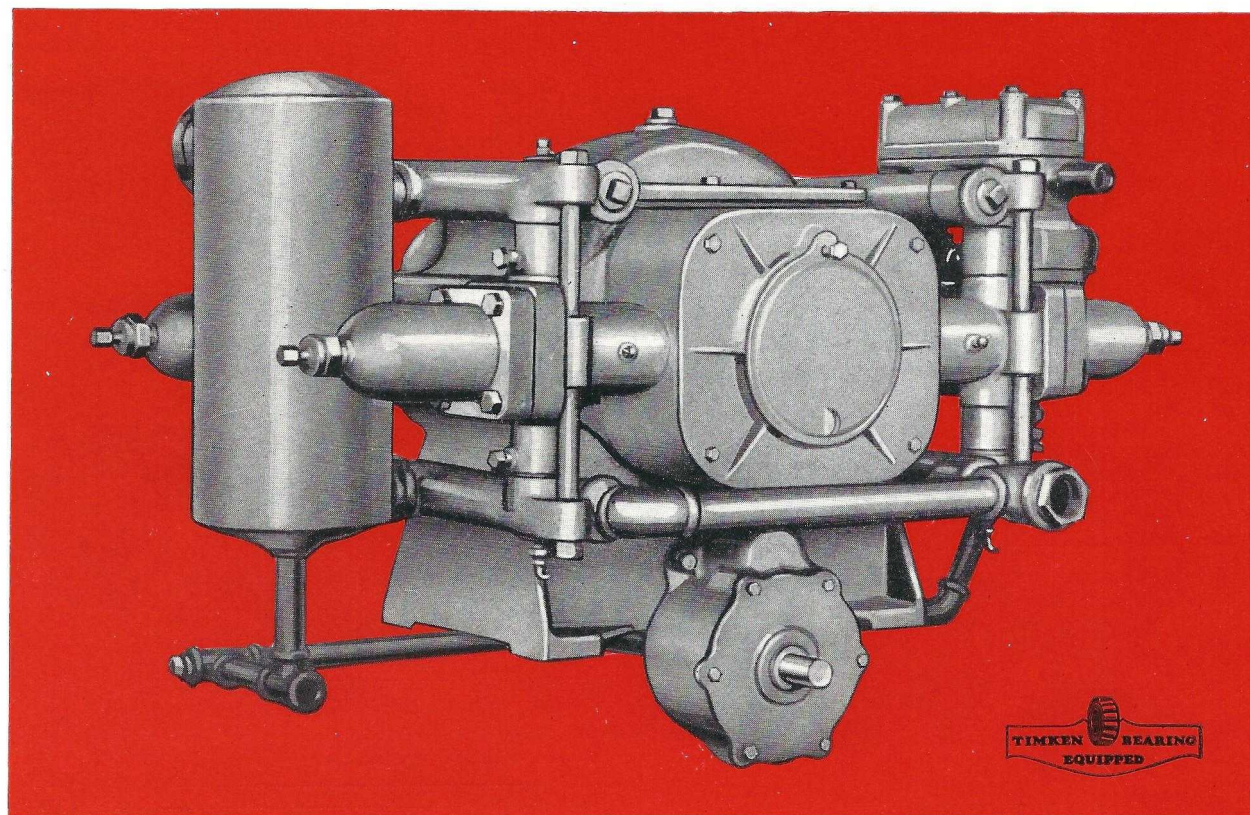
"FRIEND"

"Friend" Model FX-25 gal.

Operating Pressure up to 1,000 lbs. (depending on power used)

Quadruplex Pump: Displacement type, with no contact or wear on the cylinder walls.
Completely enclosed—dustproof.

Bore	1¾ in.	Tractor drive gear ratio.....	4.11-1	pressure controller, and tools.	
Stroke	4 in.	22 gal. per minute at counter-		Overall length	26 in.
Normal speed	150 R.P.M.	shaft speed of 540 R.P.M.		Width	40 in.
Bearings	Timken	Lubrication	Oil bath gearing	Height	27 in.
Standard gear ratio.....	5.6-1	Equipment: "Friend" automatic		Weight	600 lbs.



Motor-Pump, FX pump as above, with
4-cylinder LeRoi gasoline engine
shown below:

Horsepower	16
Bore	2⅞ in.
Stroke	3½ in.

Dimensions of combined motor-pump
unit:

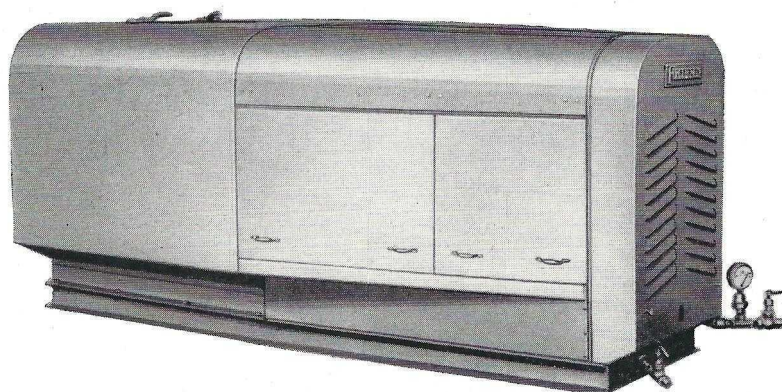
Overall length	56 in.
Width	40 in.
Height	30½ in.
Weight	1,340 lbs.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

per minute - **700 lb. pressure**

Standard Styles - MODEL FX "FRIEND"



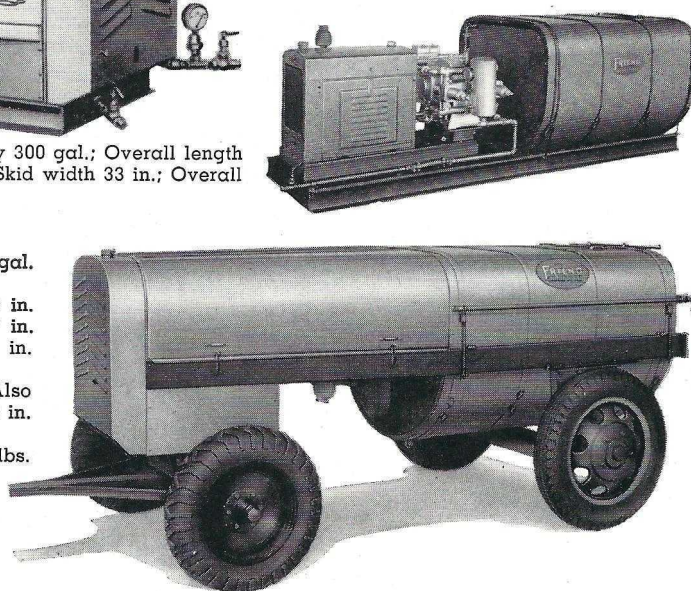
Skid Style, Streamlined

Code	FXRAM
Tank capacity	300 gal.
(Furnished with wood or steel tank).	
Overall length	124 in.
Skid length	118 in.
Overall width	44 in.
Skid width	44 in.
Overall height	43 in.
Shipping weight	2250 lbs.

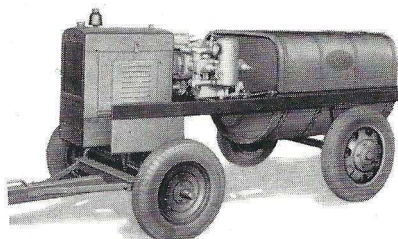
Open Type Skid Style: Code FXRAS; Tank capacity 300 gal.; Overall length 122½ in.; Skid length 122½ in.; Overall width 44 in.; Skid width 33 in.; Overall height 42½ in.; Shipping weight 2100 lbs.

Cutunder Style, Streamlined

Code	FXRUW	Tank capacity	300 gal.
(Furnished with wood or steel tank).			
Overall length	124 in.	Overall height	55 in.
Overall width	69 in.	Tread	57 in.
Ground clearance			11 in.
(With 6.00-16 in. front tires and 6.00-20 in. rear)			
Wheels: 4:00 x 16 in. D.C. front, 5 x 20 in. F.B. rear. (Also available with duals rear, or 26 x 5 in. front, 48 x 6 in. rear Timken bearing steel wheels).			
Shipping weight			3150 lbs.

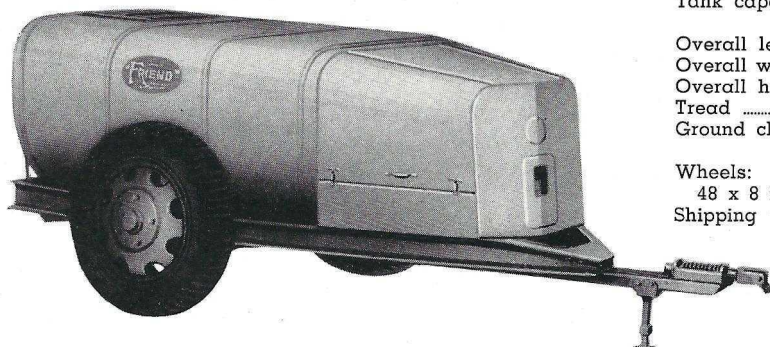


Open Type Cutunder Style: Code FXRUF; Overall length 122 in.; Shipping weight 3000 lbs. Other specifications same as for Streamlined Cutunder, above.



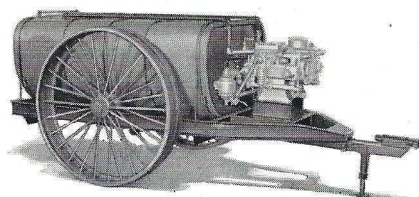
Tractor-Trailer, Streamlined

Code	Streamlined FXRAB
Tank capacity	300 gal.
(Furnished with wood or steel tank).	
Overall length	102 in.
Overall width	70 in.
Overall height	59 in.
Tread	58 in.
Ground clearance	14 in.
(With pneumatic tires, 6.00 x 20 in.)	
Wheels: 5 x 20 in. F.B. (Also available with duals, or 48 x 8 in. Timken bearing steel wheels).	
Shipping weight	2100 lbs.



Open Type Tractor-Trailer Style: Code FXRAB. Shipping weight 2,000 lbs. Other specifications same as for Streamlined Tractor-Trailer, above.

Tanks of other capacities can be furnished—the standard tank sizes are given here.



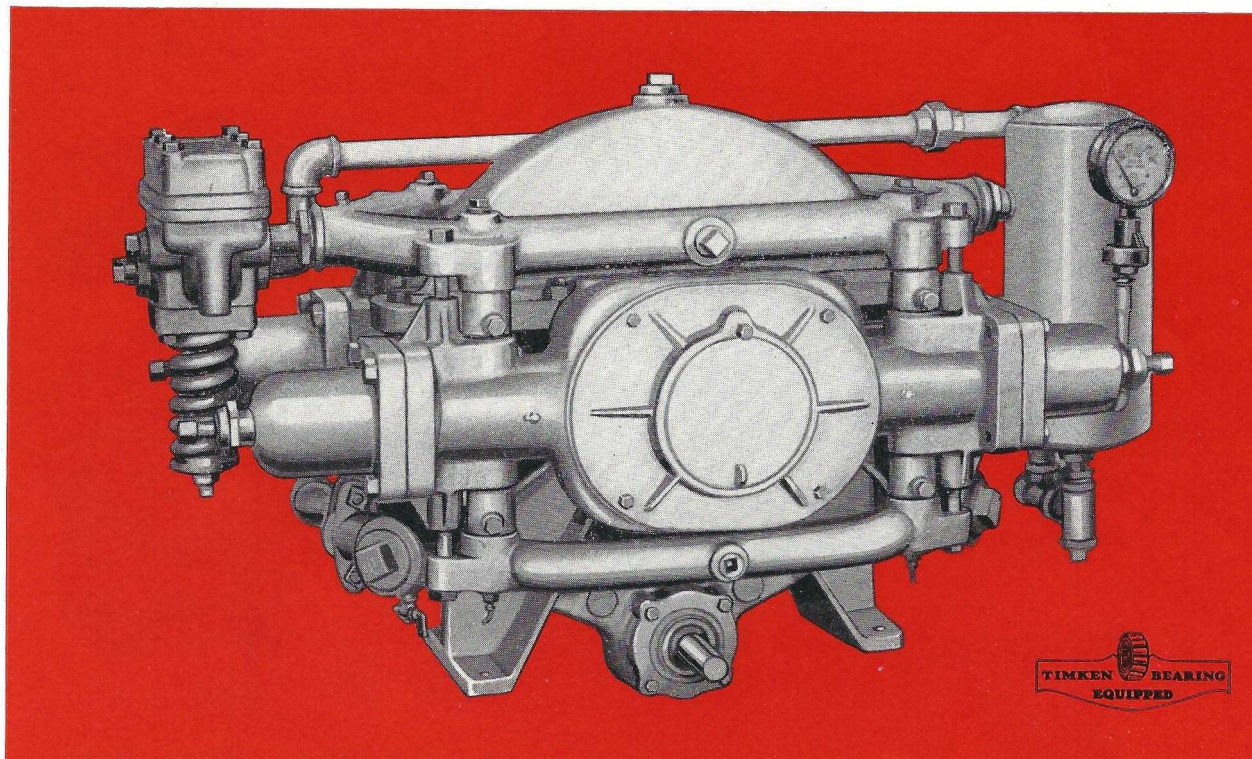
"FRIEND"

"Friend" Model AXB-35 gal.

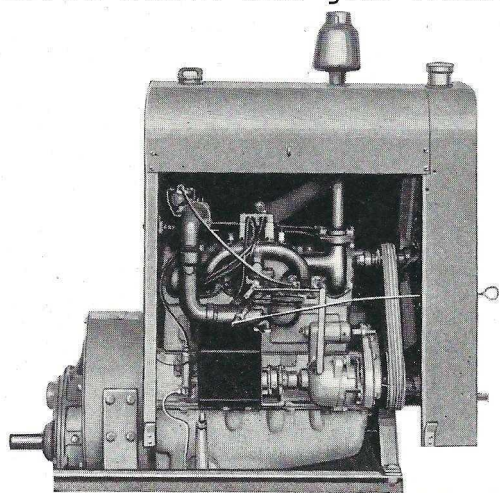
Operating Pressure up to 800 lbs. (depending on power used)

Quadruplex Pump: Displacement type, with no contact or wear on the cylinder walls.
Completely enclosed—dustproof.

Bore	2½ in.	Tractor drive gear ratio.....	5.8-1	pressure controller, and tools.
Stroke	4 in.	32 gal. per minute at counter-		Overall length
Normal speed	102 R.P.M.	shaft speed of 540 R.P.M.		Width
Bearings	Timken	Lubrication	Oil bath gearing	Height
Standard gear ratio.....	8-1	Equipment: "Friend" automatic		Weight
				770 lbs.



Motor-Pump: AXB pump as above, with 4-cylinder Hercules gasoline engine shown below, with gear reduction.



Horsepower	28
Bore	3¼ in.
Stroke	4 in.

Dimensions of combined motor-pump unit:

Overall length	60 in.
Width	45 in.
Height	43 in.
Weight	1,540 lbs.

Clutch included as standard equipment.

Thousands of successful growers tell you:

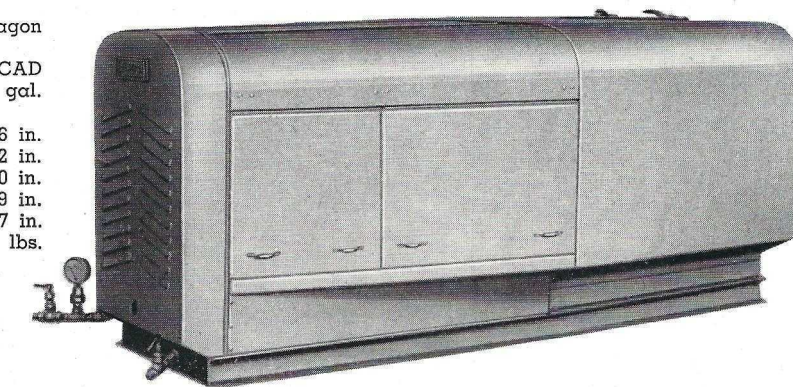
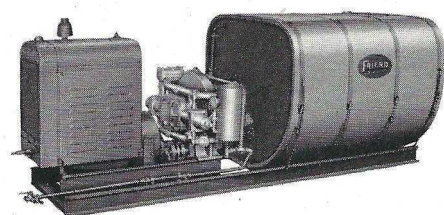
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

per minute-700 lb. pressure

Standard Styles—MODEL AXB "FRIEND"

Skid Style, Streamlined, for mounting on wagon or truck.

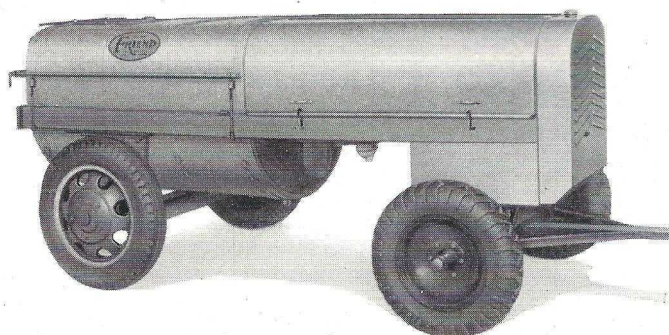
Code ARCAD
 Tank capacity 400 gal.
 (Furnished with wood or steel tank).
 Overall length 116 in.
 Skid length 112 in.
 Overall width 50 in.
 Skid width 39 in.
 Overall height 47 in.
 Shipping weight 2700 lbs.



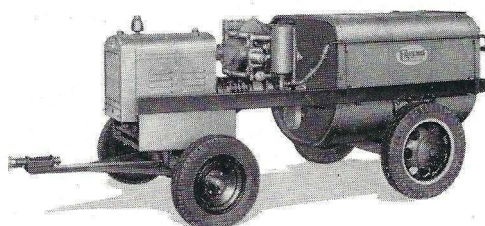
Open Type Skid Style: Code ARATY. Tank capacity 400 gal.; Overall length 129 in.; Skid length 124 in.; Overall width 50½ in.; Skid width 36 in.; Overall height 48½ in.; Shipping weight 2500 lbs.

Cutunder Style, Streamlined

Code ABROW Tank capacity 400 gal.
 (Furnished with wood or steel tank).
 Overall length 128 in. Overall height 60 in.
 Overall width 75 in. Tread 63 in.
 Ground clearance 11 in.
 (With pneumatic tires 6.00-16 in. front, and 6.00-20 in. rear).
 Wheels: 4.00 x 16 in. D.C. front; 5.00 x 20 in. F.B. rear. (Also available with duals rear, or 28 x 6 in. front, 54 x 8 in. rear, Timken bearing steel wheels)
 Shipping weight 3450 lbs.

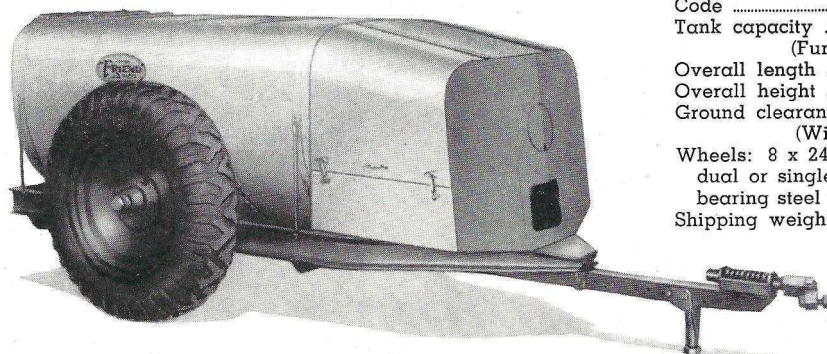


Open Type Cutunder Style: Code ABRUM; Overall length 126 in.; Shipping weight 3250 lbs. Other specifications same as for Streamlined Cutunder, above.

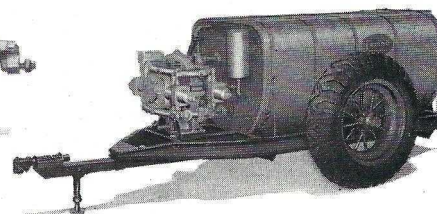


Tractor-Trailer, Streamlined

Code Streamlined ABTEH
 Tank capacity 400 gal.
 (Furnished with wood or steel tank).
 Overall length 119 in. Overall width 70 in.
 Overall height 57 in. Tread 59 in.
 Ground clearance 12 in.
 (With pneumatic tires, 9.00 x 24 in.)
 Wheels: 8 x 24 in. drop center rims. (Also available with dual or single 5 x 20 in. F.B. rims, or 54 x 8 in. Timken bearing steel wheels).
 Shipping weight 2550 lbs.



Open Type Tractor-Trailer: Code ABTEH; Shipping weight 2450 lbs.; Other specifications same as for Streamlined Tractor-Trailer, above.
 Tanks of other capacities can be furnished—the standard tank sizes are given above.



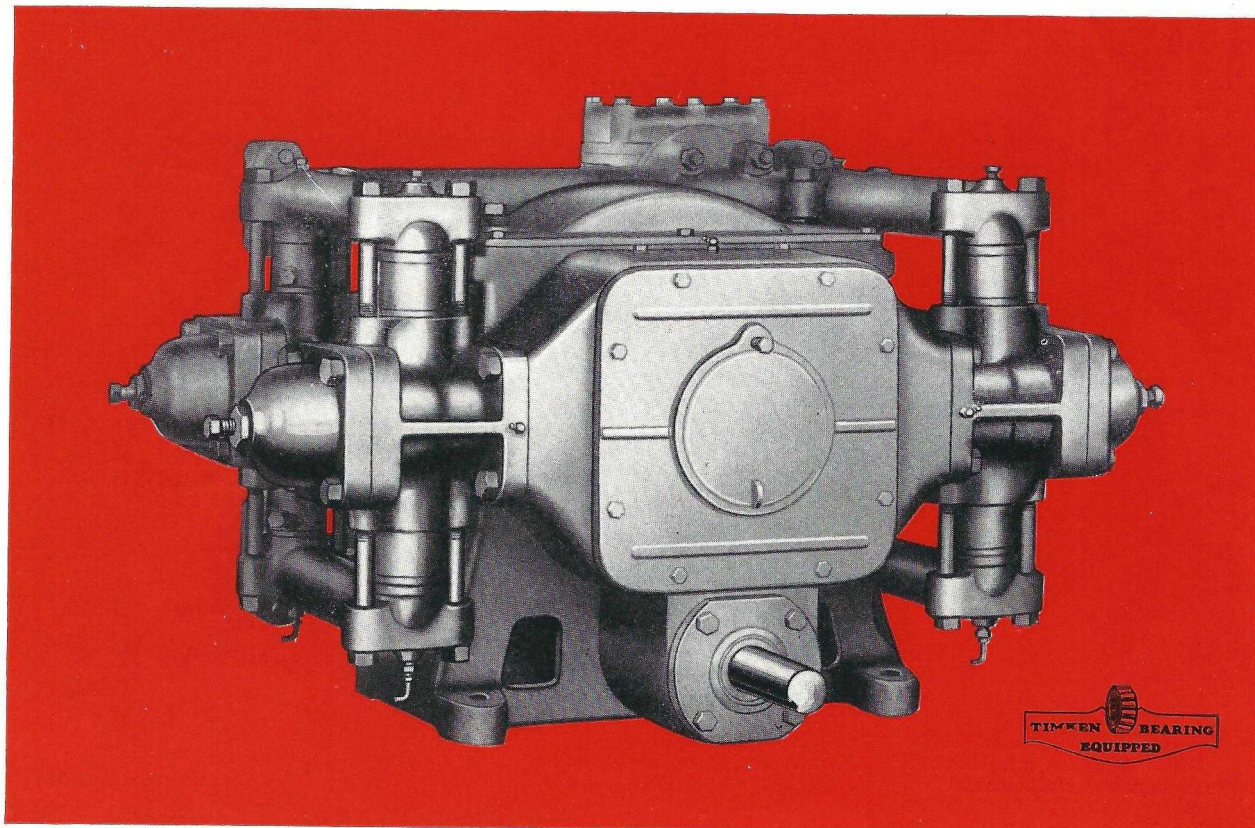
"FRIEND"

"Friend" Model YX-60 gal.

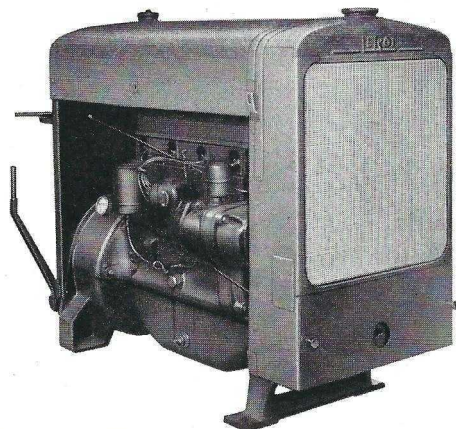
Operating Pressure up to 1,000 lbs. (depending on power used)

Quadruplex Pump: Displacement type, with no contact or wear on the cylinder walls.
Completely enclosed—dustproof.

Bore	2¾ in.	Tractor drive gear ratio.....	4 to 1	pressure controller, and tools.	
Stroke	3¾ in.	52 gal. per min. at countershaft		Overall length	34¼ in.
Normal speed	156 R.P.M.	speed of 540 R.P.M.		Width	41 in.
Bearings	Timken	Lubrication	Oil bath gearing	Height	28½ in.
Standard gear ratio.....	4.59 to 1	Equipment: "Friend" Automatic		Weight	983 lbs.



Motor-Pump: YX pump as above, with 43 H.P. LeRoi gas engine shown below.



Horsepower	43
Bore	4 in.
Stroke	4 in.

Dimensions of combined motor-pump unit:

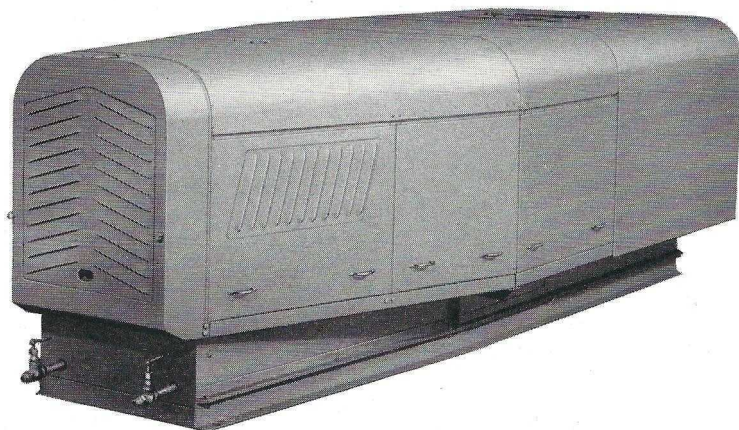
Overall length	90 in.
Width	41 in.
Height	43 in.
Weight	2030 lbs.

Clutch included as standard equipment.

Thousands of successful growers tell you:
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

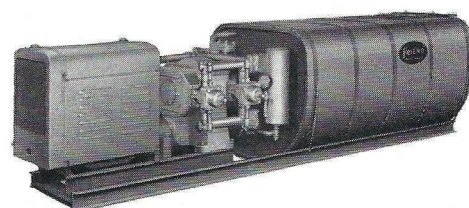
per minute - 800 lb. pressure

Standard Styles - MODEL YX "FRIEND"



Skid Style, Streamlined, for truck mounting.
 Code YABOS
 Tank capacity 500 gal.
 (Furnished with wood or steel tank).

Overall length 158 in.
 Skid length 152 in.
 Overall width 58 in.
 Skid width 39 in.
 Overall height 48 in.
 Shipping weight 3400 lbs.



Open Type Skid Style: Code YOLOV. Tank capacity 500 gal.; Overall length 161 in.; Skid length 155 in.; Overall width 56 in.; Skid width 36 in.; Overall height 45 in.; Shipping weight 3100 lbs.

Cutunder Style, Streamlined

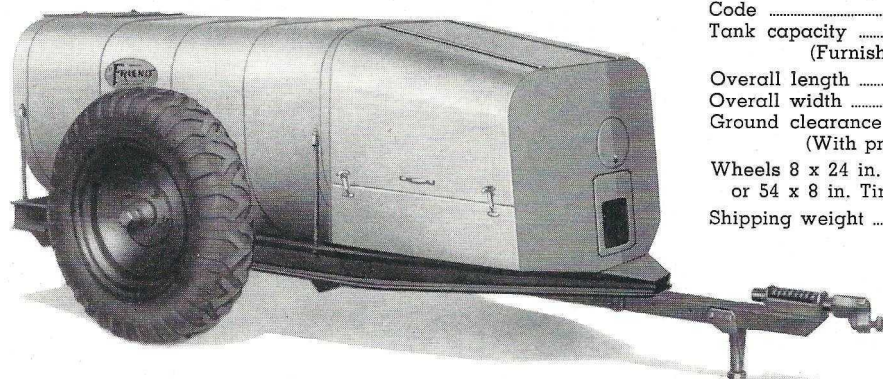
Code YXRUF
 Tank capacity 400 gal.
 (Furnished with wood or steel tank)

Overall length 155 in.
 Overall width 87 in.
 Overall height 65 in.
 Tread 64 in.
 Ground clearance 11 in.

(With 6.00 x 16 in. front tires and 6.00 x 20 in. rear).

Wheels: 4.00 x 16 in. D.C. front; dual 5 x 20 in. F.B. rear. (Also available with 28 x 6 in. front, 54 x 8 in. rear, Timken bearing steel wheels).
 Shipping weight 5200 lbs.

Tanks of other capacities can be furnished - the standard tank sizes are given above.



Tractor-Trailer, Streamlined

Code Streamlined YACAS
 Tank capacity 500 gal.
 (Furnished with wood or steel tank).

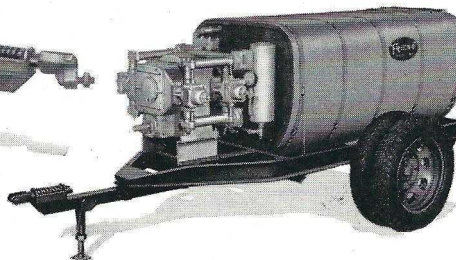
Overall length 144 in. Overall height 59 in.
 Overall width 71 in. Tread 59 in.
 Ground clearance 14 in.

(With pneumatic tires, 11.25 x 24 in.).

Wheels 8 x 24 in. D.C. (Also available with duals rear, or 54 x 8 in. Timken bearing steel wheels).

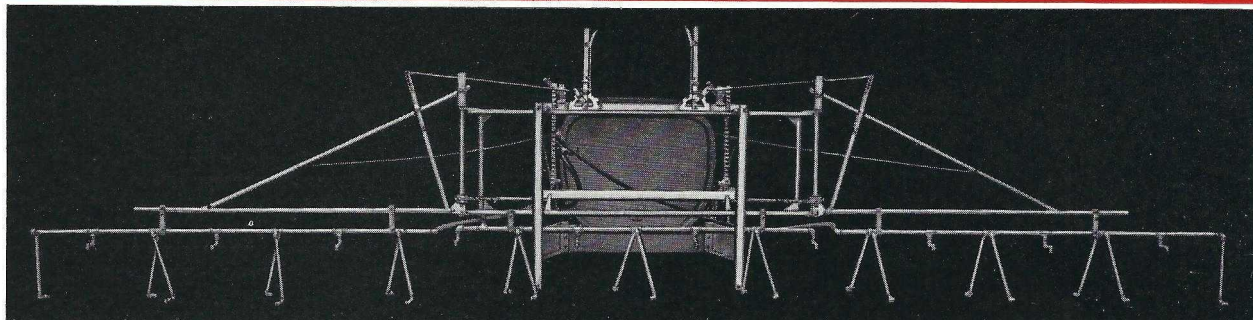
Shipping weight 3000 lbs.

Open Type Tractor-Trailer Style: Code YABIX. Mean tread with 6.00 x 20 in. duals, 66 in.; Shipping weight 3150 lbs.; Other specifications same as for Streamlined Tractor-Trailer, above.



"FRIEND"

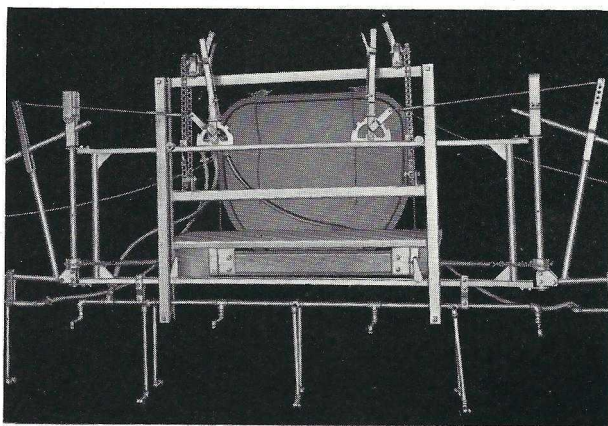
For Dependability—with Every



8 to 12 rows. The "Friend" HD Boom can be furnished for any type of row-crop sprayer—with standard spacing, 32-inch, 34-inch, or 36-inch. Special row spacing available at extra cost.

Easily Raised or Lowered, to Suit Height of Plants; Wing Sections can be Tilted—or Folded In

You have never before been offered a boom that so completely meets every need of the row-crop grower.



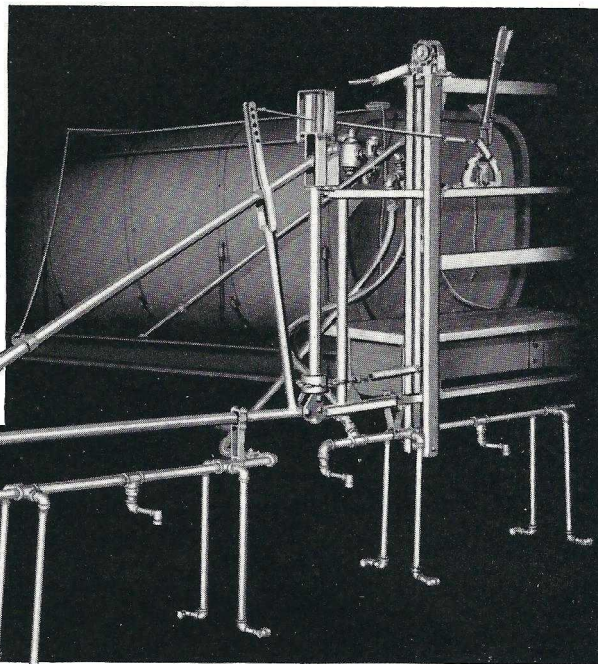
Lowered for Small Plants. This picture shows how the entire boom can be let down by means of the two chains supporting the main frame.

The "Friend" HD Boom can be quickly raised or lowered as a unit, to accommodate the height of plants being sprayed.

Either or both of the wing sections can be instantly lifted to clear obstructions — or can be folded forward for side clearance.

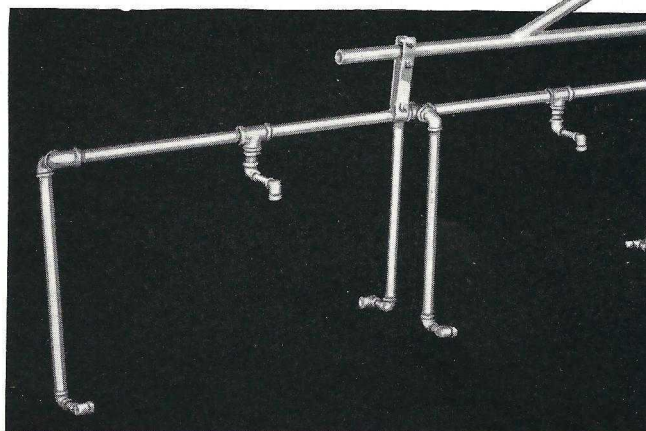
Truss Support relieves the boom piping of all strain, giving complete insurance against sagging pipes and leaky joints. The truss design gives the required strength and rigidity with minimum weight.

Flexible or Rigid Drop Pipes, as preferred. The "Friend" FB flexible drop pipe, which can be furnished, is shown on Page 41.



Piping Carried by Truss, free of any strain. Above photo shows the sturdy tubular truss, electrically welded, with pivot joints to permit folding in the wing sections when desired.

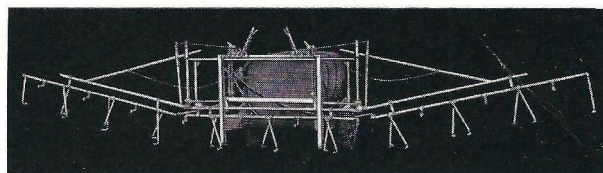
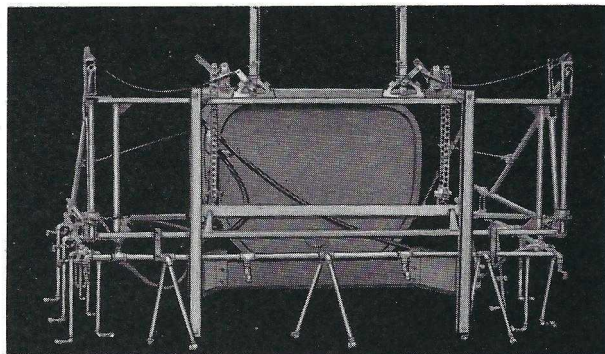
Standard Pipe Fittings are used, so that you can pick up any parts needed, for extensions or replacements, at the nearest hardware or plumbing shop.



Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

Convenience — "Friend" HD Boom

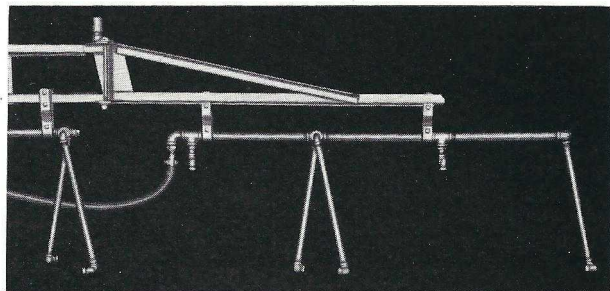


(Above) "Friend" HD Boom's wing sections can be instantly lifted or lowered, by means of lever handles.

(At Left) "Friend" HD Boom's wings folded forward, for passing through gateway.

Good **Medium-Weight** Boom- "Friend" Type DD

Growers who are not operating large acreages, with many days of spraying each season, may find that the "Friend" DD Boom meets their needs.



Wing Section of "Friend" DD Boom; welded angle truss.

An excellent investment for the medium-sized farm. Substantially constructed, to give long and dependable service.

Welded Angle Truss carries the weight, relieving the piping of strains.

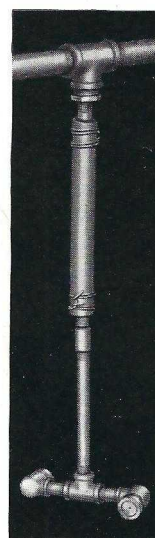
"Friend" Type FB Flexible Drop Pipe

Eliminates breakage and other damage, when the between-row nozzles are carried close to the ground.

A rigid drop pipe is apt to be bent or broken when moving over rough ground. The "Friend" FB gives protection against such damage in the simplest possible way—without any costly parts or complications.

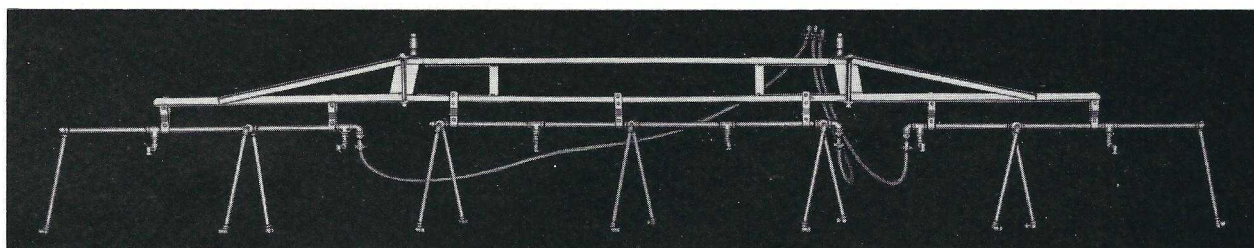
A short length of hose serves as the upper section of the drop pipe, giving the necessary flexibility.

Can be furnished with either the HD or DD Boom.



Side Sections Fold Back for clearance, to go through gateways, pass trees, etc.

Flexible or Rigid Drop Pipes can be furnished. If you have spraying over rough ground, or want to spray from a very low nozzle position, the "Friend" FB drops are well worth while.



"Friend" DD 6-Row Boom, available in standard row spacings, 32-inch, 34-inch and 36-inch.

"FRIEND"

Many Special Booms; Filters.

A few of the "Friend" Booms built for special requirements

Below are three of the many types of specialized booms that we have furnished for growers—including booms for spraying vegetables, alfalfa, and other crops. We can furnish the exact type of boom that will give best results on your work. Write for further details, describing your conditions.

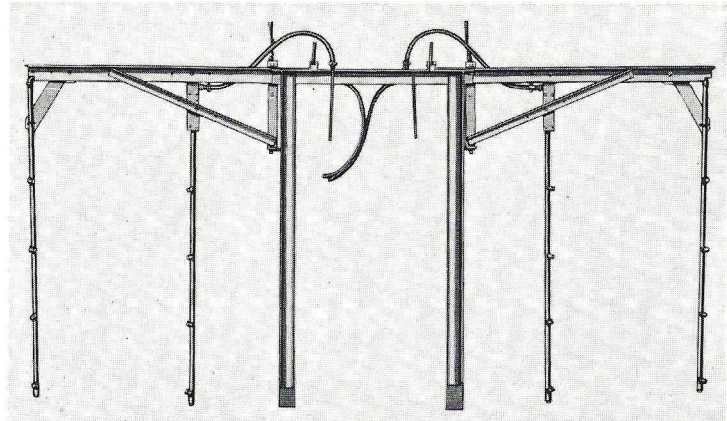
Grape Boom (at right) provides the only positive method of controlling the grape hopper.

This boom covers the *top* and *both sides* of two rows at the same time.

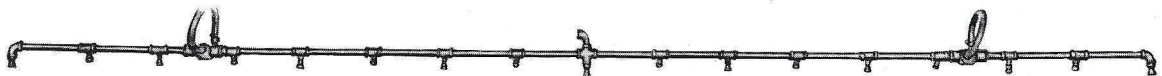
To give *thorough* penetration, it is equipped with 16 special "Friend" drive nozzles.

Convenient to use—as the arms fold to permit passing through gates. And the end pipes can be swung up separately, to permit turning at the ends of rows.

Substantially built, for long and dependable service.



Model D Boom (at left), three nozzles to the row. This type has given good satisfaction to thousands of growers, for vegetable and row-crop spraying. The end sections fold upward when side clearance is needed. Regularly furnished for 2, 4, or 6 rows.

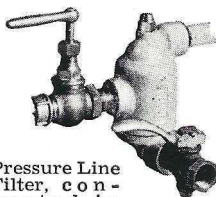


Weed Boom (above) delivers a killing spray at high pressure. Equipped with special "Friend" weed nozzles which give a powerful fan spray—directing the full pump pressure on the weed. The strong cutting action has given remarkably high efficiency in weed extermination.

Furnished with 12, 16, or 20 nozzles, with 10-inch spacing.

Ample Filter Protection

For complete protection, "Friend" Sprayers are provided with suction strainers and pressure line filters, such as shown here.



Pressure Line Filter, connected in service. The parts are shown at right.

Prevents oversize particles of spray material from reaching the spray nozzles or gun head. Has fine mesh cylindrical brass filter screen. Self cleaning — by closing discharge valve and opening drain valve, the flow through the filter screen is reversed, and any sediment is carried out.

Pressure Line Filter

Prevents oversize particles of spray material from reaching the spray nozzles or gun head. Has fine mesh cylindrical brass filter screen. Self cleaning — by closing discharge valve and opening drain valve, the flow through the filter screen is reversed, and any sediment is carried out.



Pressure Line Filter, opened to show parts.

Suction Line Filter

Spray solution enters from the suction line at a tangent, whirling in the filter body and throwing heavy solids to the sides, to settle in the bottom. Then the solution passes upward through the filter screen to the suction manifold of pump.

The large brass strainer is amply oversize to give extra straining capacity. (Filter for 1½-inch suction lines has a screen with 16.4 square inches of free opening—8 times the pipe area.)



Suction Line Filter removes solids both by centrifugal action and screen.

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

"Friend" Spraguns — all Types

GIVE BETTER RESULTS WITH ANY SPRAYER

You have probably seen many growers using "Friend" Spraguns with sprayers of other makes — because there are thousands of them doing it.

They are the guns that *have everything the grower wants*.

Handiness and Balance. Used for hours without tiring the back and arms. Made as light as consistent with strength. Perfectly balanced — comfortable handle.

Give any Spray you want — at a slight turn of the wrist. Instant change from extreme high drive

to a wide soft mist — or in between.

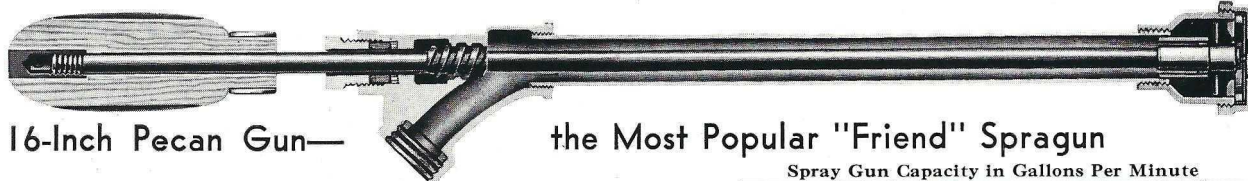
Shut-off in Tip makes possible a wider range of sprays, with a gun that is *Drip-proof*; stainless steel discs and replaceable tips give positive shut-off.

Friction Device holds spray adjustments at all pressures.

Rustproof — discs are stainless steel.

Only two internal wearing parts — the disc and tip — small and inexpensive. Which means —

Upkeep cost is a Trifle.



16-Inch Pecan Gun—

the Most Popular "Friend" Spragun

As the name suggests, this gun was originally developed by us for the pecan grower—but proved so superior to other types that it became the favorite for all orchard spraying.

The special head of the Pecan gun gives growers the maximum height obtainable with a finely divided spray, and the same character of spray at all adjustments.

Standard length: Overall 26 in., barrel 16 in., Code GUPEC. With 42 in. barrel, overall length, 52 in., Code GUNPE.

Spray Gun Capacity in Gallons Per Minute

Disc Size	Number of Friend Disc	300 lbs.	400 lbs.	500 lbs.	600 lbs.	700 lbs.	800 lbs.
1/16	4	1.4	1.6	1.9	2.1	2.2	2.5
3/64	5	2.2	2.5	2.8	3.1	3.3	3.5
3/32	6	3	3.4	3.8	4.3	4.6	4.8
7/64	7	4	4.6	4.8	5.3	5.8	6.1
1/8	8	5.5	6.1	6.9	7.4	8	8.5
9/64	9	5.6	6.5	7.7	8.4	9	9.6
5/32	10	8.3	9.6	10.6	11.5	12.3	13



"Friend" Park Gun (above). Same as Pecan gun, but has an extension cap tip, and no whirl plate. Standard equipment includes whirl plate and cap to convert to Pecan gun.

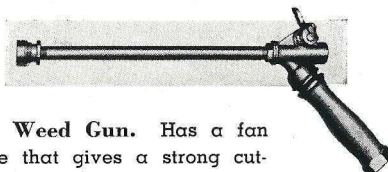
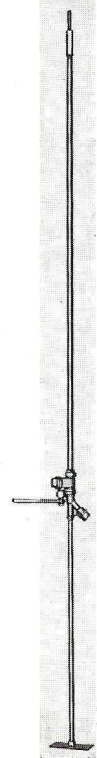
Used where greater height is needed, with a more solid stream.

With 42 in. barrel, Code GUNER. With 16 in. barrel, Code GUNCO.

"Friend" Shade Tree Gun (at left). Designed specifically for park and shade tree work. Gives a solid stream and maximum height.

Has a detachable standard for ease of handling, and positive control of direction. Quick-acting, full-opening lever throttle type shut-off.

Length of barrel 60 in. Code GUNNY.



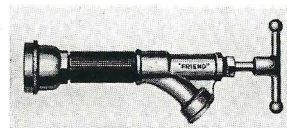
"Friend" Weed Gun. Has a fan spray nozzle that gives a strong cutting action, and thorough penetration. Pistol grip, and easy operating thumb control shut-off.

10 in. barrel. Code GUSTY.

Try a "Friend" Spragun — and you will want one for your work, no matter what make of sprayer you may own.

Made to Meet Every Need — in a Variety of Types.

(For Multiple-Nozzle Spray Brooms, see Page 44).



"Friend" Vegetable Gun, for quick and thorough washing of vegetables under high pressure. Variable spray, from fine mist to coarse cutting stream.

Overall length 10 in. Code GUMVG.

"Friend" Whitewash Gun (below). With fan spray nozzle, and quick operated lever shut-off.

Overall length 64 in. Code GUTTA.



"FRIEND"

Reliable—Proven by Service Test

"Friend" Detachable-Nozzle Boom

so you do not ruin the head itself if a thread is stripped.

And it has the 2-in-1 Economy Head

You can use this head either with 6 nozzles or 4 nozzles. Any time you want a 4-nozzle head instead of a six, just back off the two end nozzles and replace with pipe plugs.

Detachable Nozzles save you the expense of replacing the entire head if a nozzle goes bad. (Another economy feature introduced by "Friend.")

With 3 nozzles, 48-inch barrel, screw shut-off, code Vibst. Capacity at 300 lb. pressure, 4.3 gallons per minute; at 400 lb., 4.9 g.p.m.; at 500 lb., 5.4 g.p.m.

Same with 4 nozzles, code Vibrm. Capacity at 300 lb. pressure, 5.8 gallons per minute; at 400 lb., 6.5 g.p.m.; at 500 lb., 7.1 g.p.m.

Same with 6 nozzles, code Vibro. Capacity at 300 lb. pressure, 8.7 gallons per minute; at 400 lb., 9.8 g.p.m.; at 500 lb., 10.7 g.p.m.

"Friend" Brooms give you quick coverage with fine spray, combined with large capacity. They are ideal for covering a large area with a fine mist.

The 6-nozzle and 4-nozzle sizes are shown above; also made in 3-nozzle and 8-nozzle. The capacities given are with "Friend" Calyx nozzles having $\frac{1}{16}$ -inch orifice in disc.

Same with 8 nozzles, code Vibrs. Capacity at 300 lb. pressure, 11.5 gallons per minute; at 400 lb., 13.0 g.p.m.; at 500 lb., 14.3 g.p.m.

Short Virginia brooms with 18" pipe; screw shut-off; 3-nozzle, code Vibsg. 4-nozzle, code Vibsh.

"Friend" Nozzles

Thousands of growers have found that "Friend" nozzles are not surpassed for wide and even distribution, and strong projective power. They are simple, durable, and non-clogging. Made entirely of brass. All standard $\frac{1}{4}$ -in. female pipe thread.



Original "Friend" Nozzle: Gives an even, velvet-like spray. Generally favored for use with bamboo poles; also a variety of uses with hand and power sprayers. Straight, code Nap. 45° angle, code Navy. 90° angle, code Nobie.

"Friend" Drive Spray Nozzle: Drive even greater than the "Friend" Calyx Nozzle, and not as wide distribution. Used to obtain maximum drive with brooms, spray rods, etc. Straight, code Nigin. 45° angle, code Noseg.

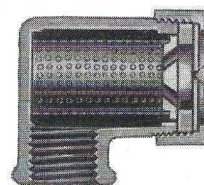


"Friend" Hummer or Potato Nozzle: Used for row-crop work, and gives a beautiful velvet spray at low pressures. Has strainer. Straight only, code Navig.

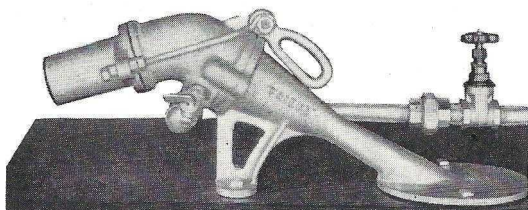
"Friend" Calyx nozzle: Has stronger projective power and gives narrower distribution than Original "Friend" Nozzle. Very popular for use on brooms for orchard spraying. Straight, code Nutme. 45° angle, code Night.



"Friend" Extra Area Filter Nozzle: A most satisfactory nozzle for row-crop spraying, because of its cylindrical filter strainer—which has an area of 1.6 sq. in., far greater than that of strainers ordinarily found in row-crop nozzles. Delivers a fine soft spray, code Filte.



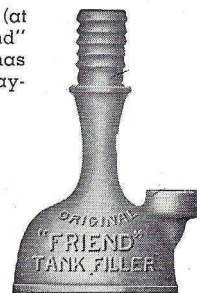
"Friend" Tank Fillers



"Friend" Inverted Tank Filler, (above) does away with any danger of poisoning the water supply, as all drip goes into the tank. This inverted filler, which is mounted on top of the tank, is of the Venturi type, with a removable jet. Made in a range of sizes, our largest giving a capacity of 125 gallons per minute with a 15-ft. lift.

"Friend" Submerged Type Tank Filler, (at right). The first jet filler made was a "Friend" and in many years of service this type has proved its value in saving time during the spraying season.

On a 15 ft. lift, the capacity will run 17 to 50 gallons per minute, depending on size and pump pressure. The jet is replaceable.



Thousands of successful growers tell you:
"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

"FRIEND" Spraying Accessories

Hose and Hose Fittings

"Friend" High Duty 3 braid Spray Hose. Guaranteed for working pressures up to 800 lbs. Carried in $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch size.



1" Suction Hose Gasket, rubber. Code Cande.

Lead hose gasket—for $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch, $\frac{5}{8}$ -inch and $\frac{3}{4}$ -inch spray hose. Code Cap.



Hose bands, all brass in sizes $\frac{3}{4}$ -inch and under. 1-inch and over, galvanized. For all hose sizes listed below—right-hand column shows maximum diameter the hose band will take:

Hose band size	Max. Dia. Hose Band will take	Hose band size	Max. Dia. Hose Band will take
$\frac{3}{8}$ "—3 ply	$\frac{3}{4}$ "	1"—4 ply	1 $\frac{1}{8}$ "
$\frac{1}{2}$ "—2 ply	$\frac{7}{8}$ "	1 $\frac{1}{4}$ "—3 ply	1 $\frac{1}{8}$ "
$\frac{1}{2}$ "—3 ply	$\frac{1}{8}$ "	1 $\frac{1}{4}$ "—4 ply	1 $\frac{1}{8}$ "
$\frac{3}{4}$ "—4 ply	1 $\frac{3}{8}$ "	1 $\frac{1}{2}$ "—4 ply	2 $\frac{1}{8}$ "
1"—3 ply	1 $\frac{3}{8}$ "	2"—5 ply	2 $\frac{7}{8}$ "
		2 $\frac{3}{4}$ "—3 or 4 ply	3 $\frac{1}{4}$ "



Transfer fitting, Pipe and Hose Connection: all brass, $\frac{3}{4}$ -inch female hose thread with $\frac{1}{4}$ -inch male pipe thread, for use with small shut-offs or nozzles. Code Pansy.

Hose Coupling Cap, all brass: $\frac{3}{4}$ -inch female hose thread. Code Panth.



$\frac{3}{4}$ -inch Brass Bushing, all brass, $\frac{3}{4}$ -inch standard male pipe thread and $\frac{1}{4}$ -inch standard female pipe thread. Code Peaco.



Extra heavy coupling, twin clamp style, for large high-pressure sprayers. For $\frac{3}{4}$ -inch hose. Machined bore.



Swivel Hose Coupling. All brass, for $\frac{1}{2}$ -inch hose. Plain bearing. Gives protection for hose against twisting. Code Sovol.



Swivel Hose Coupling. All brass, $\frac{3}{4}$ -inch hose threads, plain bearing. For $\frac{3}{8}$, $\frac{1}{2}$, or $\frac{3}{4}$ -inch hose. Code Sivel.

$\frac{3}{4}$ — $\frac{3}{4}$ Transfer Fitting, all brass, for hose and pipe connection. $\frac{3}{4}$ -inch male pipe thread and $\frac{3}{4}$ -inch male hose thread. Code Peamu.

1-inch—1-inch Transfer Fitting, all brass, 1-inch female hose thread and 1-inch male pipe thread. Code Perso.



$\frac{3}{4}$ — $\frac{1}{2}$ Transfer Fitting, all brass, $\frac{3}{4}$ -inch female hose thread and $\frac{1}{2}$ -inch male pipe thread. Code Party.

$\frac{3}{4}$ — $\frac{1}{2}$ Transfer Fitting, all brass, $\frac{3}{4}$ -inch male hose thread and $\frac{1}{2}$ -inch male pipe thread. Code Peach.

$\frac{3}{4}$ — $\frac{3}{4}$ Transfer Fitting, all brass, $\frac{3}{4}$ -inch female hose thread and $\frac{3}{4}$ -inch male pipe thread. Code Pearl.

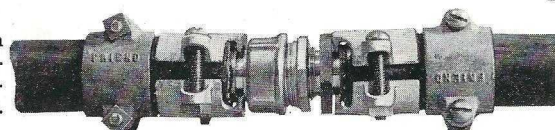
$\frac{3}{4}$ -inch Lead Hose Y, all brass, for 2 hose lines. Standard $\frac{3}{4}$ -inch male pipe thread and $\frac{3}{4}$ -inch male hose thread. Code Pecan.



Hose and pipe connection, all brass, $\frac{3}{8}$ -inch hose shank and $\frac{1}{4}$ -inch male pipe thread. Code Peper. $\frac{1}{2}$ -inch hose shank and $\frac{1}{4}$ -inch male pipe thread. Code Pickle.



High pressure hose couplings. All brass—leakless—the kind that "stay put." Couplings shown at right are used with clamps shown at left. Sold in complete sets, or separately. For $\frac{3}{8}$ -inch, $\frac{1}{2}$ -inch, $\frac{5}{8}$ -inch and $\frac{3}{4}$ -inch hose.



Instant-Detachable Coupling. Makes a tight connection, yet can be disconnected instantly by slipping hose end of coupling sideways. Fits $\frac{3}{4}$ -inch hose thread.



Valves



Drain cock, for draining and low pressure service. $\frac{3}{4}$ " male pipe by $\frac{3}{4}$ " male hose. Code Shave.



Quick-acting Single Shut-off, all brass, with quick-rising stem that makes only $1\frac{1}{2}$ turn from wide open to shut. With $\frac{3}{4}$ -inch male hose thread and $\frac{3}{4}$ -inch female pipe thread, fibre disc shut-off. Code Shark.



With $\frac{3}{4}$ " female pipe threads both ends, stainless steel plug type shut-off and replaceable stainless steel seat. Code Shary.



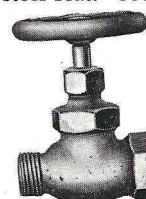
Gate Valve, often used on large sprayers for connecting spray hose to discharge pipe, $\frac{3}{4}$ " female threads both ends. Code Shapo.



"Friend" Angle Leakless Shut-off. Thousands in most satisfactory use on spray rods and bamboo poles. Quickest and easiest to use—a child can handle it. All brass. Detachable seat. $\frac{1}{4}$ -inch female pipe thread and $\frac{3}{4}$ -inch female hose thread. Code Shuto.



Quick-acting two-way shut-off, all brass, $\frac{3}{4}$ " male hose threads and $\frac{3}{4}$ " female pipe threads, fibre disc shut-off. Code Shami. With stainless steel plug type shut-off and replaceable stainless steel seat. Code Shamo.



Light style single shut-off for stationary hydrant installations and low pressure work. $\frac{3}{4}$ " male hose by $\frac{3}{4}$ " female pipe thread. Code Shamd.

"FRIEND"

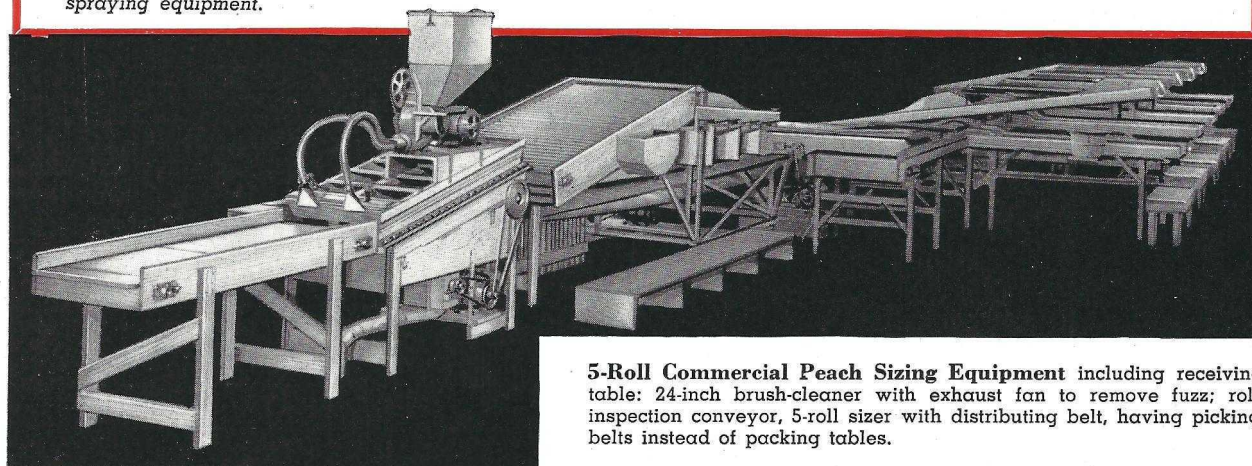
Sizing Equipment, Brush-Cleaners,

"Built to give BETTER RESULTS with LESS ATTENTION"

—the basic principle of the "Friend" Sprayer, is back of each machine shown here.

Owners of "Friend" Sprayers were looking for sizing equipment just as Efficient and Dependable as their spraying equipment.

Each unit of equipment shown on these two pages is being built by "Friend" for one reason, and one reason only: Its design embodies important improvements, which mean better service for the user.



5-Roll Commercial Peach Sizing Equipment including receiving table; 24-inch brush-cleaner with exhaust fan to remove fuzz; roll inspection conveyor, 5-roll sizer with distributing belt, having picking belts instead of packing tables.

Commercial Sizing Equipment for Apples, Peaches and Pears

The packing-house peach sizing equipment shown above, especially designed by "Friend" engineers for this installation, gives you an idea of the completeness of our service.

The most exacting needs of the largest packing houses are being met by "Friend" equipment—usually with important savings in first cost, and lower upkeep expense.

Standardized Units cut the cost — a saving which is passed on to the purchaser.

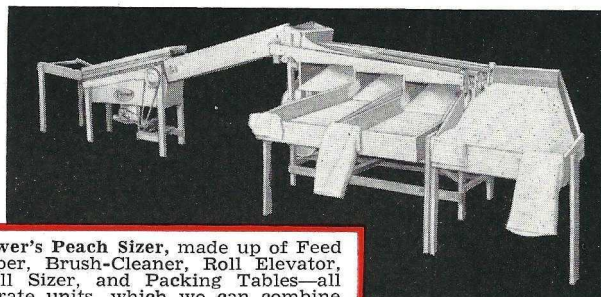
"Friend" Peach and Pear Sizing Equipment: Unusual Gentleness and Accuracy are the outstanding features of "Friend" Peach and Pear Sizers.

The sizing mechanism consists of hollow steel tubing with a molded rubber beading fastened spirally with screws. These units revolve and turn the fruit end-over-end—measuring through the narrowest dimensions.

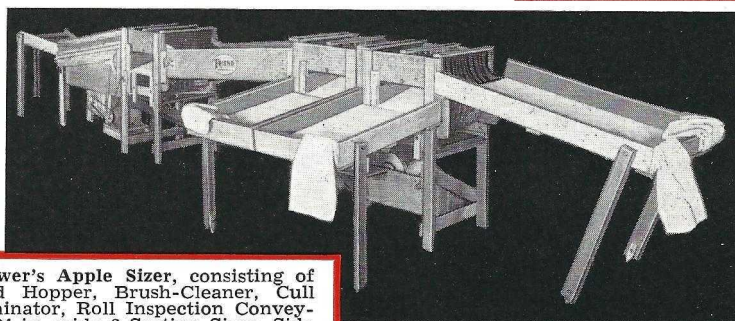
Any Combination can be furnished—to handle the work of the individual grower, or largest commercial packer.

"Friend" Apple Sizers:

Most Complete Protection of the fruit is the biggest advantage of "Friend" Apple Sizers. No other equipment gives you such insurance against injury to fruit being sized.



Grower's Peach Sizer, made up of Feed Hopper, Brush-Cleaner, Roll Elevator, 2-Roll Sizer, and Packing Tables—all separate units, which we can combine to meet any need.



Grower's Apple Sizer, consisting of Feed Hopper, Brush-Cleaner, Cull Eliminator, Roll Inspection Conveyor, 24-in. wide 2-Section Sizer, Side and End Packing Tables.

"No matter how gentle the bump, your fruit is better off without it!" Built on this principle, "Friend" sizers ride the apples from one section to the next, instead of dragging them.

The patented **"Friend" Carrier Links** lower the sized apples gently; raise apples that are just slightly too large to pass through the chain; then serve as individual carriers, one for each apple.

Sponge rubber padding of delivery boards and sides — rubber displacement fingers—rubber lag curtains. Every detail of protection is provided for.

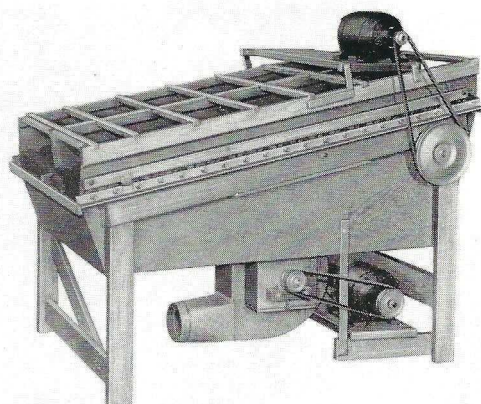
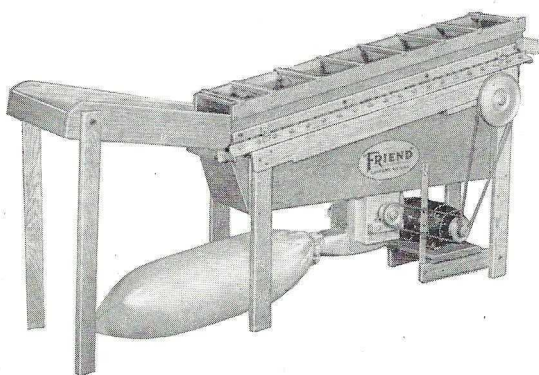
Ask for Catalog showing "Friend" Apple Sizer, or Peach Sizer

Thousands of successful growers tell you:

"The 'FRIEND' gives us MOST SATISFACTION and LEAST TROUBLE"

Dusters — with "Friend" Reliability

For the Grower, this 12-inch "Friend" Brush-Cleaner usually provides ample capacity. (Also made in 16-inch width.) Shown with Feed Hopper, and Suction Fan which can be furnished when it is desired to keep the air free from peach fuzz, spray residue, dust, etc.



For Commercial Packing, exactly the same type of brush-cleaner is built extra wide, to give the greater capacity. The machine shown above is 24 inches wide; also regularly built in 32-inch width.

New Standard of Value and Performance for Brush-Cleaners

Growers appreciate the fact that "Friend" has given far better values in brush-cleaners than ever before obtainable—lowering the price, while raising the quality.

It is a fact that inexpensive "Friend" Brush-Cleaners are doing the work of machines costing twice as much.

For Apples, Peaches, Pears, Potatoes, Green Tomatoes.

Any capacity can be furnished—built in a range of widths from 12-inch to 32-inch.

Thorough, gentle cleaning by a series of propelling brushes, with all sizes of fruit held in contact by rubber sheet.

Brushes easily cleaned—which is especially important when fruit is heavily coated with spray residue. Entire set of brushes can be taken out for cleaning in five minutes.

Chinese Pig Bristles give much longer service than fibre or horsehair; on the average will last for cleaning 50,000 to 60,000 bushels of fruit.

Ask for Bulletin describing "Friend" Brush-Cleaners

Complete line of Reliable DUSTERS for Orchards, Vegetables, Cotton, Mint, Grapes

Choosing from several sizes, you can get a "Friend" Duster especially designed for the protection of Orchards or Potatoes, Beans, Cauliflower, Peas, Grapes, Mint, Cotton.

Thousands giving dependable service — many "Friend" Heavy-Duty Dusters have worked season after season without a single repair.

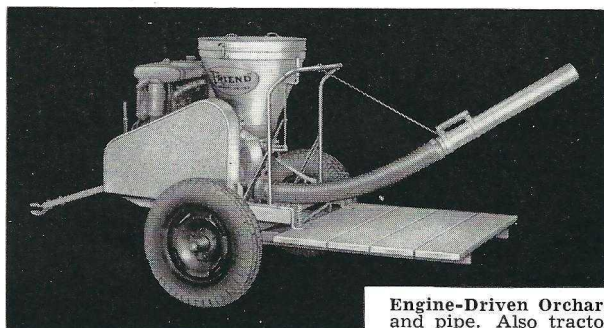
In repair cost, and in time saved, many "Friend" Dusters have saved their owners far more than their original cost.

"Friend" Unifed Regulating-Agitator is standard equipment on the latest Heavy-Duty Dusters, shown here.

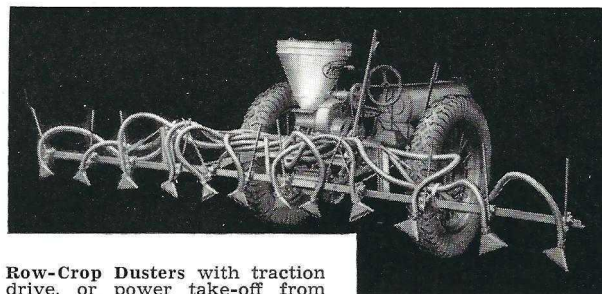
This device not only keeps the dust in the hopper whirling rapidly, but also maintains a constant uniform flow from start to finish—whether the hopper is full or nearly empty.

Streamlined Hopper is really Non-Clogging. No corners for dust to stick. Steep sides.

Quality Construction, with alemite lubrication and oil-bath gears; ball bearings; one-piece welded steel frame.



Engine-Driven Orchard Duster with spring-mounted step platform, discharge hose and pipe. Also tractor-trailer outfits for use with all standard orchard tractors.



Row-Crop Dusters with traction drive, or power take-off from tractor. (Also engine-driven.) Truss boom is easily raised or swung by handy levers. Hinged nozzle supports, easily adjustable for height and spacing.

Ask for Catalog showing the complete line of "Friend" Dusters

"FRIEND"

Many Other Uses for your "Friend" Sprayer

Some growers make it a habit to keep their sprayers' tanks filled with water — ready for instant fire-fighting service—whenever the outfits are not being used for pest or blight control.

Designed and built to deliver high-pressure fog, which is very effective in extinguishing most fires, the "Friend" Sprayer gives extra insurance that costs nothing.

Here are a few of the many uses for "Friend" Sprayers that have been reported by owners:

- Fire Fighting
- Controlling Grass Fires
- Whitewashing
- Fertilizing
- Cattle Grub Spraying
- Disinfecting Barns and Poultry Houses
- Weed Control
- Japanese Beetle Control
- Mosquito Control
- Golf Course Spraying
- Shade Tree Spraying
- Greenhouse Spraying
- Dust Prevention
- Coal Spraying
- Curing Concrete
- Washing Trucks and Tractors
- Vegetable Washing
- Cleaning Buildings, Floors, etc.

Two Ways to make sure that you are buying the Most Reliable Sprayer

First: Consult your own mechanical judgment.

Look at the pictures of the "Friend" Pump on Pages 2 to 7 of this catalog, and make comparisons.

You will find that the "Friend" Pump has only 1/2 to 1/3 as many moving parts as other pumps built for high-pressure spraying. Naturally the pump with fewest parts, and strongest parts, will need least attention.

Second: Talk to growers who have used "Friends" side-by-side with other sprayers.

You will find that the unique design of the "Friend" Pump has made an almost unbelievable difference in results.

The "Friend" is so much more Efficient, so much more Dependable and Economical, that it is best appreciated by the growers who have had experience with other makes of sprayers.

We believe that you will be well repaid for the time spent in making a careful investigation before you buy.

And if your choice is the "Friend," we are confident that it will prove to be the most reliable and satisfactory machine you have ever owned.

As the policy of Friend Manufacturing Co. is one of continuous improvement, all specifications, designs and prices are subject to change without notice.

We reserve the right to make such substitutions in materials specified in our catalog as may be required. We assume no liability for failure to fulfill shipping promises if unable to obtain materials because of the present emergency, fires, strikes, and causes beyond our control. Every effort will be made to maintain the superior features of "Friend" equipment.

FRIEND MANUFACTURING CO.
SPRAYERS, DUSTERS, FRUIT SIZERS and CLEANERS
GASPORT, N. Y.

EXPORT OFFICE: 90 WEST ST., NEW YORK, N. Y.